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Outlook-based semantics

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Abstract This paper presents and advocates an approach to the semantics of opinion statements, including matters of personal taste and moral claims. In this framework, 'outlook-based semantics', the circumstances of evaluation are not composed of a possible world and a judge (as in 'world-judge relativism'); rather, *outlooks* replace possible worlds in the role of circumstance of evaluation. Outlooks are refinements of worlds that settle not only matters of fact but also matters of opinion. Several virtues of the framework and advantages over existing implementations of world-judge relativism are demonstrated in this paper. First, world-judge relativism does not actually explain the 'disagreement' of 'faultless disagreement', while a straightforward explanation suggests itself in outlook-based semantics. Second, outlook-based semantics provides an account of subjective attitude verbs that can capture lack of opinionatedness. Third, outlook-based semantics unproblematically explains the connection-building role of aesthetic discourse and the group-relevance of discretionary assertions, while capturing the same effects in world-judge relativism obviates the purpose of the judge parameter. Finally, because the proposed circumstances of evaluation (outlooks) are entirely analogous to possible worlds, the framework is easy to use and extend.

Keywords Relativism · Predicates of personal taste · Subjectivity · Indexicality · Truth

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1 Introduction

1.1 Statements of opinion

This is a paper about statements of opinion ('subjective' claims), and their opposition to factual or 'objective' claims. Subjective attitude verbs like Swedish *tycka* ('think [that]' or 'have the opinion [that]') are sensitive to the distinction in question. Like Norwegian *synes*, French *trouver*, Mandarin Chinese *jué dé*, and arguably English *find* (Stephenson 2007a; Sæbø 2009; Bouchard 2012a), *tycka* embeds only matters of opinion, including taste judgments as in (1a) and (1b), moral claims involving predicates like 'wrong' and deontic modals like 'should' as in (1c) and (1d) respectively, and perceptual judgments as in (1e).

(1) a. Jag tycker att skolmaten är god.
'I think$_{[\text{opinion}]}$ that the school food is tasty.'

b. Jag tycker att det är kul att jobba.
'I think$_{[\text{opinion}]}$ it's fun to work.'

c. Jag tycker att det är fel att inte hela Sverige hjälps åt.
'I think$_{[\text{opinion}]}$ it's wrong that not all of Sweden helps.'

d. Jag tycker att vi ska ta hand om varandra.
'I think$_{[\text{opinion}]}$ that we should take care of each other.'

e. Jag tycker att den ser ut som en champinjon.
'I think$_{[\text{opinion}]}$ it looks like a mushroom.'

In cases involving factual matters such as whether someone is a doctor as in (2a) or what day it is as in (2b), *tycka* is not appropriate, although the verb *tro* 'believe' is acceptable. The same is true for statements about what will happen in the future like the one in (2c), and statements of epistemic possibility as in (2d), as well as religious statements such as (2e).

(2) a. Jag tror/#tycker att hon är läkare.
'I believe/think$_{[\text{opinion}]}$ that she is a doctor.'

b. Jag tror/#tycker att det är tisdag idag.
'I believe/think$_{[\text{opinion}]}$ that it is Tuesday today.'

c. Jag tror/#tycker att jag kommer att vinna.
'I believe/think$_{[\text{opinion}]}$ I'm going to win.'

d. Jag tror/#tycker att det kanske borjar kvart över.
'I believe/think$_{[\text{opinion}]}$ that it maybe starts quarter past.'

e. Jag tror/#tycker att det finns en Gud.
'I believe/think$_{[\text{opinion}]}$ that there is a God.'

Example (2c) casts some doubt on the suggestion from MacFarlane (2003, 2011) that so-called 'future contingents' such as this example should both be treated in the same way as predicates of personal taste as in (1a) and (1b). With respect to this diagnostic at least, future contingents are not of the same ilk as statements of taste. Indeed, it

would be odd to talk as if what will happen in the future is a matter of opinion (*#In my opinion, I will win*), although it is reasonable to imagine that there is no fact of the matter. A similar point can be made about (2d), which militates against lumping together epistemic modals and predicates of personal taste, *contra* Stephenson (2007a) and MacFarlane (2011), i.a. It may also be interesting to note that the existence of God is not treated as a matter of opinion, even though in societies with religious tolerance such matters are ones to which everyone has the right to their own viewpoint, in some sense. (In this respect religious matters contrast with ordinary factual matters like whether or not someone is a doctor; if Sue is actually a doctor but John believes she's a laywer, then John violates the norm of having correct factual beliefs).

If you ask a Swedish speaker why one can't embed *It's Tuesday* under *tycka*, the answer is typically, "because it's a matter of fact." In general, at some level of approximation, the statements that can be embedded under *tycka* are the ones about which disagreements cannot be settled with the help of further empirical evidence (including evidence that will come once we wait and see what happens in the future, given the behavior of future contingents) or more careful reflection as to what conclusions are validly drawn. (Mathematical conclusions arguably do not depend on any evidence at all, so in some cases there may not be any amount of evidence required. Still, mathematical claims can be settled through more careful reflection). In other words, a statement is embeddable under *tycka* if two perfectly rational and well-informed agents could judge it differently without making a mistake, that is, if according to one, it holds, and according to the other, it does not hold. Following Kölbel (2003), I will use the term *discretionary* to describe such matters.[1,2] This gives us a concise way of stating the generalization about what can be embedded under *tycka*: The complement of *tycka* must express a discretionary proposition (cf. Bouchard's (2012a) 'Subjectivity Requirement' for what he calls 'opinion verbs').

The predicates embeddable under subjective attitude verbs like *tycka* correspond more or less exactly to those allowing for *faultless disagreement* (Kölbel 2003) (sometimes called *subjective disagreement*, e.g., by Stojanovic 2007), exhibited in dialogues like (3), which occur not only in philosophy papers but also in the wild; (4) and (5) are naturally-occurring examples:

[1] Kölbel defined the term slightly differently, but I believe that we are characterizing the same concept. According to his definition, a statement is discretionary if it is not governed by a priori rules which in some cases dictate that speakers ought to agree, and in other cases do not. "For example, usually teachers will allow that learners believe that chocolate ice cream is delicious even if they themselves believe it isn't" (p. 68). Contents such as the deliciousness of ice cream are thus discretionary by his definition.

[2] It is not entirely uncontroversial that moral judgments would persist in the face of unlimited reflection and information. See for example the Internet Encyclopedia of Philosophy entry on Moral Relativism (http://www.iep.utm.edu/moral-re/). So a more precise formulation would specify that the use of *tycka* with moral judgments implies a philosophical view on the part of Swedish speakers that such judgments may differ within the space of perfect rationality and complete information. Whether or not they may in fact do so is not the issue; the issue is how the predicates in question are treated within the speech community. Philosophers may agree or disagree, but this seems to be the 'folk ideology' as it were. (The framework of Rabinowicz (2008) seems to be a reasonable way of caching out the notion that two ideal agents may disagree on a moral matter: Agents may have different preferences, and there are certain constraints on what constitutes an acceptable preference, but within those confines there is room for faultless disagreement).

(3) **The chili dialogue**
John: This chili is tasty.
Mary: No, it's not.

(4) Tom: I really do appreciate what you've done for me. This is a good job.
Charlie: No, it 's not. It stinks. It's putting your life on the line for someone else's money.

(5) Sam: It's just that, you know, compared to what I paid back home it's pretty reasonable.
Idi: No, no, no, no, it's not. It's not reasonable at all.

There are two important things to notice about these: First, the second interlocutor contradicts the first. Second, neither one appears to have said something false. Under a classical view on meaning, if two propositions contradict each other, then one of them should be false. This observation suggests that the classical view on meaning does not suffice.[3]

There are at least four major approaches to the problem of faultless disagreement posed by discretionary statements. An *objectivist* (also called *absolutist*) denies the second premise—that one of the statements is actually false—and maintains the classical view. The *contextualist* argues that discretionary statements depend on a contextually-given standard or judge for their truth value. *Expressivists* (also known as *non-cognitivists*) say that discretionary statements are not truth-evaluable at all, and *relativists* say that they depend on a judge or perspective for their truth value.

This paper presents and defends a particular solution to this problem called *outlook-based semantics*. It can be filed under the category of 'relativism', but unlike what springs most immediately to mind when philosophers of language hear the term 'relativism' (which I call *world-judge relativism*), this form of relativism does not supplement possible worlds with a judge parameter to form the circumstance of evaluation. Rather, possible worlds are replaced with what are called 'outlooks'. This paper argues that, unlike world-judge relativism, outlook-based semantics straightforwardly explains faultless disagreement, provides a satisfactory account of attitude verbs which accounts for lack of opinionatedness, and unproblematically explains the connection-building role of aesthetic discourse and the group-relevance of discretionary assertions, while being easy to use and extend.

In the following section, a brief review of world-judge relativism is given, setting the stage for the presentation of outlook-based semantics in Sect. 3. In Sect. 4 we will turn to pragmatics, and Sect. 5 gives a formal implementation.

[3] Note that discretionary matters being as they are does not mean that there is (or ought to be) no disputing about taste, as the old adage goes, and as some philosophers claim. For example, Egan (2010, pp. 18–19) writes that resolving a taste dispute would unreasonably "require one of the parties to the dispute to self-attribute a property that she lacks." But this does not mean that it is unreasonable to try to persuade someone to change where they stand on a matter of taste. One's taste judgements are the result of associations and experiences, which can be affected by one's interlocutor through the telling of stories, the sharing of experiences, and the juxtaposition of elements. So it is perfectly rational to attempt to *change* someone's tastes through such methods. But doing so does not amount to providing a rational argument for the conclusion.

2 Introducing world-judge relativism

2.1 Contextualism

Relativism is best understood in contrast to contextualism. Under a simple, naive version of contextualism, in the chili dialogue, John is saying, 'The chili is tasty *to me*' and Mary is saying, 'The chili is not tasty *to me*.' This means that the interlocutors are actually not expressing contradictory propositions. But then it becomes difficult to explain the felicity of *no*, signalling disagreement, in Mary's response (s. p. 4). As Lasersohn (2005) points out, disagreement is a matter of conflicting *contents* rather than conflicting *characters* in Kaplan's (1977) sense.[4] In the following dialogue, the characters conflict but the contents are perfectly compatible:

(6) **The doctor dialogue**
A: I am a doctor.
B: #No, I'm not a doctor!

It is perfectly possible for A to be a doctor while B is not a doctor, so A being a doctor does not conflict with B not being a doctor. So the *content* of A's assertion does not conflict with the content of B's assertion, even though the characters conflict. The oddness of B's *no* in (6) can be understood under the assumption that *no* in this usage signals disagreement, and this means conflict with respect to *content*. Conflict with respect to character does not suffice for disagreement.

If the statements in the chili dialogue contained a hidden speaker-indexical, then we might expect such dialogues to have the same status as the doctor dialogue, because we would not have a conflict with respect to content, only character. Indeed, if the experiencer is explicitly anchored to the speaker, then *no* is no longer perfectly felicitous:

(7) **The frog legs dialogue**
A: Frog legs taste good to me.
B: #No, frog legs don't taste good to me.

(Example adapted from Moltmann (2010, p. 190).) Now, granted, B's response in (7) is not quite as bad as B's response in (6). Huvenes (2012) makes a similar observation in connection with the following dialogue, which he points out is not quite as bad as the doctor exchange:

(8) Sally: I like this chili.
Mark: I disagree, it's too hot for me.

[4] Recall that the *character* of a sentence containing an indexical such as *I*, *you*, *here*, or *now*, is the aspect of its meaning that remains constant across different contexts of use. Character is the level at which 'It is my birthday today' means the same thing no matter who says it or when. The *content* of a sentence containing indexicals is the result of 'filling in' the indexicals with their values from the context. The content of *It is my birthday today* spoken by me on one day is not the content of the same sentence spoken by me or someone else on another day.

This is a fact that must be accounted for (and an account will be given in this paper). Nevertheless, B's response in (7) is clearly much stranger than Mary's in the original chili dialogue in (3).

2.2 Relativism

The kind of analysis that Lasersohn advocates is a *relativist* one. The intuition behind this solution is that the truth of a statement is relative not only to a world (and a context of utterance), but also to a judge. So rather than defining the truth value of a sentence ϕ just with respect to a context of utterance c and a world w[5]:

$$[\![\phi]\!]^{c;w} = \text{T iff } \ldots$$

(where T stands for 'true'), Lasersohn adds a judge parameter, so that truth is defined with respect to a world w and a judge j, in addition to a context of utterance c:

$$[\![\phi]\!]^{c;w,j} = \text{T iff } \ldots$$

A world-judge pair thus constitutes a circumstance of evaluation for determining the truth of a sentence, so the content of a statement is not a set of worlds simpliciter, but a set of world-judge pairs, those world-judge pairs such that the statement is true in the world, according to the judge. The content of *The chili is tasty*, for example, is the set of world-judge pairs such that the chili is tasty to the judge in the world. This makes it possible for John and Mary to express conflicting contents in dialogues like the chili dialogue.

There are more sophisticated varieties of contextualism that have been developed in response to Lasersohn's argument (e.g. Glanzberg 2007; Schaffer 2011; Cappelen and Hawthorne 2009, ch. 4; Björnsson and Alexander 2010, i.a.). Moltmann's (2010) and Pearson's (2013) first-person genericity accounts can also be categorized as sophisticated versions of contextualism. We will not discuss these, nor will we discuss expressivism (see e.g. Blackburn 1984, 1998; Gibbard 1990, 2003 regarding expressivism for moral judgments), or the kind of objectivism advocated by Barker (2002, 2013) and Richard (2004, 2008), where the disagreement in the chili dialogue is meta-linguistic, and not a genuine disagreement. Kennedy and Willer's (2016) proposal in terms of counterstance contingency will be discussed only briefly in the section on attitude verbs.

Rather, this article focusses on a distinction between two kinds of relativism, which I call *world-judge relativism* and *simple relativism*. The kind of relativism just described, what I call *world-judge relativism*, is often taken as definitional of relativism. For example, in a passage explaining what relativism is, Brogaard (2008) writes that "the relativist's circumstances are triples that consist of a world and a time parameter…and

[5] I am following the common practice of using a semi-colon to separate the context of utterance parameter from the parameters making up the circumstance of evaluation. Abstraction over both yields the *character* of the sentence in Kaplan's (1989) sense; the *content* of the sentence is the result of abstacting over the circumstance of evaluation while fixing a given context of utterance.

an evaluator or judge parameter…" This characterization holds of Lasersohn-style relativism (Lasersohn 2005), where possible worlds are paired with judges, Egan-style relativism (Egan 2010), using centered worlds (which is equivalent to adding a judge parameter, as Stephenson 2007a points out) and MacFarlane-style relativism (MacFarlane 2003, 2007, 2011), which invokes the notion of a context of assessment.

But Brogaard's characterization does not apply to every analysis that canonically appears in citation lists under the 'relativist' heading. In particular, it does not apply to Kölbel's (2002) theory, which I wish to label *simple relativism*. Simple relativism is what I would like to advocate here, in a slightly different form, namely *outlook-based semantics*. The kind of relativism advocated here does not *supplement* worlds with *judges* in the circumstance of evaluation; rather it *replaces* them by *outlooks*. So rather than:

$$[\![\phi]\!]^{c;w} = \text{T iff } \ldots$$

we have:

$$[\![\phi]\!]^{c;o} = \text{T iff } \ldots$$

where o is an outlook (cf. Kölbel's 'perspectives').[6] The following section will develop this idea in much greater detail.

3 Semantics

3.1 Basic notions

Let us begin with the notion of an *outlook*. An outlook is very much like a possible world. Like a possible world, an outlook is in some sense a 'way the world could be', and determines the extensions of predicates and relations. There is another possible world in which I became a professional opera singer and reincarnated Maria Callas as I once dreamed. The extension of the predicate 'opera singer' includes me in that world. It does not include me in this world, for better or worse. In the same way, the extensions of discretionary predicates like 'tasty' differ from outlook to outlook. There are some outlooks according to which frog legs are tasty—where frog legs are in the extension of the predicate 'tasty'—and others where they are not. In the sense in which possible worlds are said to be 'complete' (in contrast to, for example, situations), outlooks settle the extensions of every single predicate and relation in the relevant vocabulary. Outlooks are *more* complete than possible worlds: the predicates and relations whose extensions they settle include discretionary ones like 'tasty' as

[6] Although outlooks replace possible worlds as circumstances of evaluation, possible worlds are still part of the theory. They are crucial for making the distinction between discretionary and objective propositions. A model for outlook-based semantics will thus determine not only a set of outlooks but also a set of worlds. So at this level, worlds are not replaced by outlooks; it is only insofar as outlooks, rather than worlds, are used as the circumstance of evaluation that outlooks replace worlds according to the view I wish to promote.

well as non-discretionary ones like 'opera singer'. So in an intuitive as well as a technical sense, outlooks *refine* worlds, by specifying more information.

Just as propositions are sets of possible worlds in the classical theory, a *proposition* is a set of outlooks in the present setting (to a first approximation; to accommodate presupposition, we will in the end treat propositions as functions from outlooks to truth values). There are two different kinds of propositions: *discretionary propositions* and *objective propositions*. The former are the contents of opinion statements, and the objects of *tycka*-attitudes; the latter are the sorts of things that can be objectively true. But all propositions, both discretionary and objective, are sets of outlooks. For example, the proposition that I am an opera singer is the set of outlooks o such that the extension of the predicate 'opera singer' contains me in o. The proposition that the chili is tasty is the set of outlooks o according to which the chili is in the extension of the predicate 'tasty' in o. More precisely: if Ω is the set of all outlooks, then a proposition is a subset of Ω.

Sentences *express propositions* qua sets of outlooks, as their truth value is relative to a given outlook. We assume a formal language $\mathcal{L}$ and a valuation function $[\![\cdot]\!]$ which assigns semantic values (extensions) to expressions of $\mathcal{L}$ relative to context of utterance c and an outlook o.[7] The proposition expressed by a given formula is the set of outlooks for which the valuation function, when applied to the formula, assigns the value true. Let ϕ be a formula of $\mathcal{L}$ and let $[\![\phi]\!]^{c;o}$ be the value of ϕ relative to context of utterance c and outlook o. With this notation, we can say that the proposition expressed by ϕ in context c is the set of outlooks o such that $[\![\phi]\!]^{c;o} = \mathrm{T}$, where T stands for 'true'. (When we treat propositions as functions from outlooks to truth values, we will say instead that the proposition expressed by ϕ in context c is that function f from outlooks to truth values such that for all outlooks o, $f(o) = [\![\phi]\!]^{c;o}$.) We say that an outlook o *verifies* a formula ϕ (wrt. context c) iff $[\![\phi]\!]^{c;o} = \mathrm{T}$.

We will borrow the standard treatments of entailment and contradiction from the classical approach. A formula ϕ *entails* another formula ψ if every outlook that verifies ϕ also verifies ψ. Two formulas are *contradictory* if there is no outlook verifying both of them, i.e., if the intersection of the propositions they express is empty.

Some outlooks agree with the actual world on all matters of fact, settling in addition all matters of opinion. These outlooks can be called *refinements* of the actual world. In general, the set of outlooks that refine a given world is called the *refinement class* for the world. Worlds and their refinement classes stand in a one-to-one relation $\propto$. This picture can be visualized as in Fig. 1, where each grey dot is an outlook, and each shaded area corresponds to a possible world.

The grey dots within a given shaded area are the refinements of the coresponding possible world.[8]

[7] Here we are ignoring the model and assignment function parameters.

[8] Note that the notion of 'refinement' used here is precisely the one developed by Christian List for the purpose of reconciling 'folk' and scientific levels of description and in the analysis of chance and free will (List 2013; List and Pivato, to appear). The powerset (set of subsets) of $\mathcal{W}$—the set of possible worlds propositions—forms an algebra, in the sense that it is closed under conjunction (intersection), disjunction (union), and negation (complement). The same is true for the powerset of Ω. And the powerset of $\mathcal{W}$ is isomorphic to the sub-algebra (subset, which is also an algebra) of the powerset of Ω containing

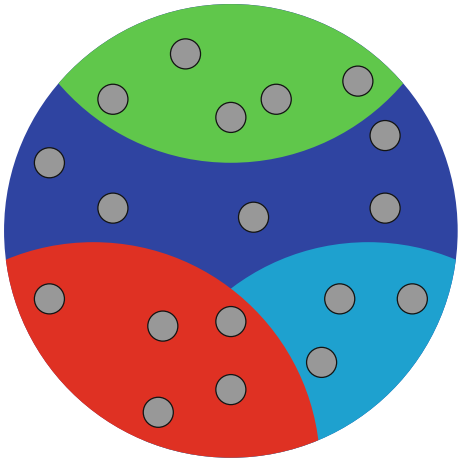


Fig. 1 Possible worlds (shaded areas) and the outlooks that refine them

What distinguishes objective propositions from discretionary ones is that the objective propositions correspond to a set of possible worlds. We will stick with the conception of propositions as sets of outlooks, so it is not that objective propositions *are* sets of possible worlds; rather they *correspond* to sets of possible worlds. A set of outlooks corresponds to a set of possible worlds in the relevant sense if it is the union of refinement classes for some set of possible worlds. Pictorially, any union of shaded areas in Fig. 1 (including one single shaded area or the empty set) is an objective proposition, as the dots in a given shaded area make up the refinement class for a world.

We can write this more formally as follows. Let $\mathcal{W}$ be the set of possible worlds, and let Ω be the set of outlooks. A set of outlooks $O \subseteq \Omega$ is an *objective proposition* if and only if there is some subset W of $\mathcal{W}$ such that $O = \bigcup\{O' \subseteq \Omega \mid O' \propto w \text{ for some } w \in W\}$. For example, the proposition that I am an opera singer is the set of outlooks o where the predicate 'opera singer' includes me, and that is the union of refinement classes for worlds w where I am an opera singer in w. A *discretionary proposition* is a set of outlooks that is not an objective proposition; one that doesn't 'color within the lines', as it were.[9] A discretionary proposition may in principle be homogeneous with respect to some worlds; it is discretionary as long as it makes a cut across *some* world. Propositions that are homogeneous with respect to *no* worlds may be called 'strongly discretionary', where we define a *strongly discretionary proposition* formally as a set of outlooks that is not a superset of any refinement class of any world,

Footnote 8 continued
only objective propositions. Thus outlooks provide a more *fine-grained* level of description than possible worlds, in List's technical sense. Also somewhat similar in spirit to the present work is Yablo's (2016) work on 'aboutness', where for example 'loose talk' can be modelled in terms of a 'subject matter' constituted by an equivalence relation among possible worlds.

[9] If we make use of a three-valued logic in order to deal with presupposition, then we will have to see propositions as functions from worlds to truth values, and then a discretionary proposition can be defined as a function for which there are two refinements of the same world such that one is assigned the value 'true' and the other is assigned 'false'. We will come to applications of this later.

and whose complement with respect to Ω is also not a superset of any refinement class of any world. In other words, no objective proposition entails either it or its negation.

Summarizing, we have the following definitions (against the background of a set of possible worlds $\mathcal{W}$ and a set of outlooks Ω and a one-to-one relation $\propto$ among possible worlds and their refinement classes):

- **Objective proposition**
  A set of outlooks O is an *objective proposition* if and only if there is some subset W of $\mathcal{W}$ such that $O = \bigcup\{O' \subseteq \Omega \mid O' \propto w \text{ for some } w \in W\}$.
- **Discretionary proposition**
  A set of outlooks O is a *discretionary proposition* if and only if it is not an objective proposition.
- **Strongly discretionary proposition**
  A set of outlooks O is a *strongly discretionary proposition* if and only if there is no world w such that O is a superset of w's refinement class, and there is no world w such that the complement of O with respect to Ω is a superset of w's refinement class.

Note that we will need to refine these definitions slightly later, both to relativize them to a particular common ground, and to take into account the possibility for propositions to be undefined relative to a particular outlook.

A parallel distinction can be made between *discretionary* and *non-discretionary predicates*. The latter are predicates whose extensions are constant across all refinements of all worlds; the former are predicates whose extensions are heterogeneous across refinements of at least one world. (A predicate whose extension is heterogeneous across refinements of all worlds may be called *strongly discretionary*). In this sense, a possible world fixes the extensions of all of the objective predicates, and does not (necessarily) decide about the discretionary ones, while an outlook fixes the extension of objective *and* discretionary predicates.

Note that predicting which predicates are discretionary and which are not is beyond the scope of this work. I assume that *doctor* is not, and *tasty* is. A more ambitious project would aim to predict which predicates are objective and which are discretionary on the basis of their lexical semantic properties in conjunction with philosophical stances on such things as the nature of rationality and empirical evidence. Evidence that such a project is warranted comes from the following pair of examples pointed out by Kennedy and Willer (2016), in which that one and the same relation ('part of') has varying effects on the felicity of *consider*:

(9) a. #Kim considers Burgundy part of France.
    b. Kim considers Crimea part of Russia.

Somehow, whether Crimea is part of Russia is a matter of opinion, but whether Burgundy is part of France is not. Assuming that the same notion of parthood is involved in both variants, this example shows that the relation alone does not determine the status of the proposition. I leave it to the ambitious project to explain why worlds may have heterogeneous refinements with respect to the question of whether Crimea is part of Russia, but not whether Burgundy is part of France.

Truth at a world (or *objective truth*) can be defined as truth at all refinements of the world. Likewise, *falsity at a world* is falsity at all refinements of the world. More precisely, a formula ϕ is *objectively true* relative to context c and world w if and only if $[\![\phi]\!]^{c,o} = \mathrm{T}$ for all refinements o of w. Similarly, a formula ϕ is *objectively false* relative to context c and world w if and only if $[\![\phi]\!]^{c,o} = \mathrm{F}$ for all refinements o of w.

Setting aside the possibility of undefined values, an objective proposition is either objectively true or objectively false at every world; their truth values are always uniform across all refinements of a given world. Discretionary propositions have truth values that are heterogeneous across refinements of at least one world, so a discretionary proposition will not always be true or false at a world. However, it can happen that a discretionary proposition is false at a world. For example, consider the proposition expressed by the following case, involving intersective modification of a non-discretionary noun by a discretionary adjective:

(10) John is a sexy linguist.

Note first that the proposition expressed by this sentence is discretionary; there are worlds with refinements where it is true (in which John is both sexy and a linguist) and other refinements where it is false (in which John is a linguist, but not sexy). However, the proposition expressed in (10) is false at all refinements of any world where John is not a linguist. So it is false at all such worlds. Such 'hybrid' propositions are (weakly) discretionary but not strongly discretionary.

3.2 Faultlessness

We now have the tools to characterize the notion of being 'at fault', in the relevant sense for the discussion of 'faultless disagreement'. The observation on which this is based is the intuition that in a case like (3), neither participant has *said something false*.

Whether or not one has said something false depends on which world one is in. So being 'at fault' must be defined relative to a world. For this, we can use the world determined by the context of utterance. (As discussed below, the context of utterance is one part of the theory where I believe that the word 'outlook' should *not* replace the word 'possible world'; contexts of utterance should be conceived of as specifying a particular possible world in which the utterance is taking place, rather than designating a particular outlook). If someone expresses a formula ϕ in context of utterance c, and ϕ is objectively false with respect to c and the world of c, then that individual is *at fault* in the relevant sense for doing so. Call a prohibition against being at fault in this way the *norm of accuracy*.[10]

As discussed above, discretionary propositions are not in general false throughout the refinement classes of worlds, and a strongly discretionary proposition is never false throughout the refinement class of a world. Assuming that 'tasty' is independent of

[10] This characterization of fault diverges radically from that of Kölbel (2002). He says, "One makes a mistake if one believes a proposition [or content] that is not true in one's own perspective (at that time)" (p. 100). On the present story, one cannot believe a proposition that is not true in one's own perspective, so such a situation would never arise.

all objective predicates, it is strongly discretionary, so simple predications involving it will also be. Under this assumption, any given world will have refinements o and o' such that the chili is tasty in o and the chili is not tasty in o', so a simple predication of a discretionary predicate, as in *The chili is tasty*, will not be false at any world. By the same token, *The chili is not tasty* will never have world-level falsity. So no agent could *ever* be at fault for expressing either one of these sentences. (If 'tasty' were discretionary but not strongly discretionary, there could be worlds at which *The chili is tasty* is an assertion for which one could be at fault. I have difficulty imagining such a scenario.)

Nevertheless, *The chili is tasty* clearly contradicts *The chili is not tasty*. Again, two propositions are *contradictory* if there is no outlook verifying both of them, i.e., if the intersection of the propositions they express is empty. If we take a standard view on negation, then *The chili is tasty* contradicts *This chili is not tasty*; the latter expresses the complement of the former in Ω. Let us assume that *the chili* refers to some individual. Call that individual Mr. Chili, and let us assume that *tasty* picks out a set of objects, relative to a given outlook. The proposition expressed by A's statement in the chili dialogue is the set of outlooks where Mr. Chili is a member of the set picked out by *tasty*. The proposition expressed by B's statement is the set of outlooks where Mr. Chili is *not* a member of the *tasty* set. There is no overlap between these propositions; no outlook is in both. In other words, the two propositions cannot simultaneously be satisfied. Hence we have a genuine contradiction between A's statement and B's statement. Hence B's ability to preface his response with *No,* signalling contradiction in the chili dialogue in (3).

The same cannot be said about a case involving indexicals such as in the doctor dialogue in (6). In that case, we have different contexts of utterance for A's statement and B's statement, because they involve different speakers. When A is the speaker, *I* gets interpreted as A. So, relative to the context where A is the speaker, A's statement expresses the proposition that A is a doctor, the set of outlooks where A is in the set picked out by *doctor*. When B is the speaker, *I* gets interpreted as B. The proposition expressed by *I am not a doctor*, spoken by B, is the set of outlooks where B is not in the set picked out by *doctor*. These two propositions *can* be satisfied simultaneously. A being a doctor does not preclude B not being a doctor, obviously. So there is no contradiction here and *No* is inappropriate.

But as noted above, our definition of 'discretionary' allows for a situation in which the refinements of a given world are uniform with respect to the (classical) truth value of a given discretionary proposition (e.g. where the discretionary proposition is false at all refinements of the world). All that is required for a proposition to be discretionary is that it make a cut across the refinement class of *some* world. This means that there could be some other world such that our discretionary proposition p is, say, false at all of its refinements.

Take for example *John is a sexy linguist*. This is true at outlooks where John is sexy and John is a linguist. Whether or not he is a linguist varies by world; in some worlds he is a linguist and in others he is not, and that holds for all refinements of the worlds in question. Among the refinements of worlds where John is a linguist, the proposition makes a cut between those where he is sexy and those were he is not. But the proposition is uniformly false among all refinements of worlds where John is not

a linguist. This property comports with the intuition that when *John is a sexy linguist* is uttered in a world where John is not a linguist, the speaker has said something false. This intuition is further supported by the following contrast.

(11) A: John is a sexy linguist.
B: No, he's not sexy.

(12) A: John is a sexy linguist.
B: No, he's not a linguist.

(11) has the character of a faultless disagreement, while (12) does not. Our definitions deliver these results: A speaker would be at fault for saying that John is a sexy linguist in a world where John is not a linguist, because the sentence would be objectively false in that world.

3.3 Acceptance and disagreement

So far we have faultlessness and contradiction, so we have 'faultless contradiction' as it were. But we do not yet have faultless *disagreement*. For that, we need to build up some tools for talking about doxastic states. They will also be of use in defining the semantics of subjective attitude verbs.

Because outlooks are 'complete', it is not tenable to associate each agent with a *single* outlook; most of us are not so opinionated and headstrong. For example, if A asks B what he thinks about the soup, B might respond 'I don't know what I think', signalling that he does not have a firm opinion. Following the tradition in epistemic logic, where the epistemic state of an agent is represented as a set of possible worlds, we will represent a *doxastic state* for an agent as a set of outlooks. The set of outlooks compatible with the agent's beliefs and opinions are those that are *doxastically accessible* to the agent. Here the present framework differs from that of Kölbel (2002), who associates each agent with a single 'perspective'. We might retain the use of the word 'perpective' to name something that is uniquely associated with an agent, namely the agent's doxastic state, so we can speak of 'the perspective of Anne', or 'Anne's perpsective'. (It is tempting, but incorrect, to speak of 'the outlook of Anne', or 'Anne's outlook', since this typically does not uniquely refer). With this terminological choice, a *perspective* is a set of outlooks.

To believe a proposition p, or be of the opinion that p holds, is to be in a state such that every one of one's doxastically accessible outlooks verifies p. (This is the ordinary conception of belief in epistemic logic, with the word 'world' replaced by the word 'outlook'). In that case we can simply say that the proposition holds according to the agent, or more simply, that the agent *accepts* the proposition. If the chili is tasty in all of an agent's doxastically accessible outlooks, then the agent accepts the proposition that the chili is tasty (i.e., the agent is of the opinion that the chili is tasty). If I am an opera singer in all of the agent's doxastically accessible outlooks, then the agent accepts (believes) the proposition that I am an opera singer. We could also speak in terms of 'perspectives' here; if a proposition holds according to an agent, it can be said *hold from the agent's perspective* (but not according to **the agent's outlook*; again, this is not well-formed).

If the agent does not know whether I am an opera singer or not, then there will be some outlooks in that agent's doxastic state according to which I am an opera singer, and others according to which I am not. Then the agent does not accept the proposition that I am an opera singer. Likewise, if the agent has no opinion on the chili, it will be tasty according to some of the agent's doxastically accessible outlooks and not tasty according to others. Then the agent does not accept the proposition that the chili is tasty. This does not mean that the agent *rejects* the proposition. If an agent *rejects* a proposition, then the proposition holds in *none* of the agent's doxastically accessible outlooks.

A precondition for disagreement between two agents is that one accepts a proposition and the other rejects it. Furthermore, as MacFarlane (2007) points out, it shouldn't really count as a disagreement if you are in the world where I am an opera singer, and you believe that I am an opera singer, and I am in the actual world, and I believe that I am not an opera singer. Only world-mates may sensibly disagree.

Thus in order to give a satisfactory account of agreement and disagreement, we also have to take into consideration the fact that agents have different beliefs and opinions under different circumstances. That someone happens to believe something is a contingent matter, varying from world to world. Furthermore, whether or not an agent has a given belief is a matter of fact, as shown by the fact that one would use *tro* 'believe' rather than *tycka* 'be of the opinion that' when embedding a *tycka*-report:

(13) a. Jag tror att hon tycker att…
I believe that she thinks$_{[\text{opinion}]}$ that…

b. #Jag tycker att hon tycker att…
I think$_{[\text{opinion}]}$ that she believes that…

But even though it is a matter of fact, the proposition expressed by a belief report can still be treated as a set of outlooks. Propositions about attitudes, like all propositions, are sets of outlooks, whether they are matters of fact or opinion, since outlooks settle both factual and discretionary matters. This means that agents' doxastic states vary from outlook to outlook. In different outlooks, agents are in different doxastic states, in other words.

Making this assumption allows us to use standard tools from epistemic logic to represent the variation in agents' doxastic states across different circumstances within the outlook framework. In particular, we can capture variation in doxastic states across outlooks via an *accessibility relation* R_a on Ω for each agent a, and let the doxastic state of a according to a given outlook o be the set of outlooks accessible via R_a from o. Suppose we have four outlooks, o_{11}, o_{10}, o_{01}, and o_{00}, and two agents a and b. In o_{11}, the chili is tasty and I am an opera singer; in o_{10}, the chili is tasty but I am not an opera singer; in o_{01}, the chili is not tasty but I am an opera singer; and in o_{00} the chili is not tasty and nor am I an opera singer. The diagram in Fig. 2 illustrates a possible set of accessibility relations among these outlooks: Each node is an outlook, and an arrow from one outlook to another outlook, labelled with the name of an agent, indicates that the target outlook is doxastically accessible to the agent from the source outlook.

Let $p = \{o_{11}, o_{10}\}$ be the proposition that the chili is tasty, and let $q = \{o_{11}, o_{01}\}$ be the proposition that I am an opera singer. In o_{10} and o_{00}, agent a accepts p and

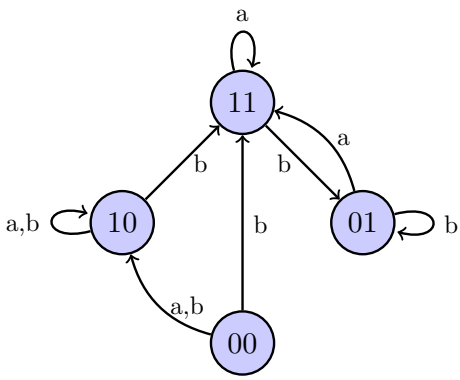


Fig. 2 Example model of accessibility relations among outlooks

rejects q, because the only outlook accessible to a is the one in which both p and q hold. In those same two outlooks, agent b accepts p, because all of the accessible outlooks are ones in which p holds, but b does not accept or reject q; both possibilities for q are open. In o_{11} and o_{01}, agent a accepts both p and q, because the only outlook accessible to a is the one in which both p and q hold. In those same two outlooks, agent b rejects p and accepts q.[11]

Disagreement may then be defined with respect to two agents and a proposition *at an outlook*. If, at a given outlook o, one agent accepts p and another rejects p, then the two agents disagree about p in o. So, in both o_{11} and o_{01}, agents a and b disagree about p but agree about q. Because acceptance and rejection of propositions are objective matters, constant across refinements of a given world, we can also speak derivatively of disagreement at a world.[12]

The distinction between contradiction and disagreement is useful for accounting for the subtle difference between (6) and (7). In the chili dialogue, we have (faultless) contradiction and (faultless) disagreement. Contradiction is lacking both in the doctor dialogue (6) and in the frog legs dialogue in (7), but in the former case there is no disagreement, while in the latter case, there is a disagreement.

The fact that there is no contradiction in (7) follows from the presence of the indexical *me* in the phrase *to me*. We might analyze *to me* as a propositional attitude operator (akin to 'I think that…'), or as an argument to a binary version of the predicate 'taste good'. In either case, because we have a speaker-indexical in the sentence and a change of speaker across the two utterances, the two sentences will not end up expressing contradictory propositions. Hence the inappropriateness of *No* here.

However, in a case like the frog legs dialogue, we do have *disagreement*, even though we don't have contradiction. We have disagreement in the sense that A holds it to be the case that frog legs taste good, while B does not, given a pragmatic assumption of sincerity. Let us assume that when one makes an assertion expressing a discretionary

[11] Note that p holds in o_{11} so there is a sense in which b is 'wrong' at this outlook. But this does not mean that b is 'at fault' for the purposes of 'faultless disagreement', as we will explain later.

[12] Overloading the term 'faultless' just the slightest bit, a disagreement at a world can be said to be faultless if the proposition is false at at least one refinement of the world and true at at least one other refinement.

proposition, one is being sincere if one holds the opinion in question. Being sincere means adhering to the Maxim of Quality, which can be stated as follows:

(14) **Maxim of Quality**
If p is the proposition expressed by sentence ϕ in Kaplanian context c, then the agent should accept p in c.

Now, to make sense of this, we must say what it means to accept a proposition *in a context of utterance*, and this part is slightly tricky. For Kaplan (1978), a context of utterance is a sequence of parameters including not only a speaker and an addressee, but also a world, which serves as a default circumstance of evalution. In the present framework, circumstances of evaluation are outlooks, so it is natural to assume that the context of utterance provides an outlook rather than a world. However, I believe that this is one place where we do *not* want to strike out the word 'possible world' and replace it with 'outlook'. If it were an outlook, which one would it be? There will be no single outlook that captures the opinions of all of the interlocutors, and certainly no single outlook that captures what has been agreed upon so far. On the other hand, it is easy to determine which world should be provided by the context: the world in which the conversation is taking place.

Letting the context provide a world rather than an outlook suffices for the Maxim of Quality, which relies on the notion of acceptance in a context; since acceptance is defined on worlds, we can see acceptance in a context as acceptance in the world of the context. The world of the context can also serve as a default circumstance of evaluation for objective propositions, for which truth at a world is defined. So it seems to be both harmless and less problematic to assume that the context of utterance determines a world.

Assuming that the interlocutors are being sincere in a case like (3), they disagree in the world of the dialogue (the world common to the contexts of both utterances). Recall the definition of disagreement: "If, at a given outlook o, one agent accepts p and another rejects p, then the two agents disagree about p in o. So, in both o_{11} and o_{01}, agents a and b disagree about p but agree about q." In the frog legs dialogue, the interlocutors do not express contradictory propositions, although they do give evidence of disagreement, by reporting on their own doxastic states. This can be used to explain why *No* is slightly ameliorated in the frog legs dialogue, compared to the doctor dialogue: For perfect felicity, *no* requires contradiction (as in the chili dialogue), but in the absence of contradiction (as in the doctor dialogue and the frog legs dialogue), disagreement ameliorates it.

Note that this treatment captures disagreement under attitude reports, so *John thinks that carrots are tasty and Mary thinks they're not* implies that John and Mary disagree about the tastiness of carrots. To make this precise, let us assume that, relative to a given context of utterance c, 'a thinks ϕ' is true at an outlook o if and only if, in o, a accepts the proposition expressed by ϕ in c. This means that every outlook accessible via R_a from o is one satisfying the proposition expressed by ϕ in c. Given such a semantics for *think* (provided in Sect. 3.5), this sentence denotes the set of outlooks where the proposition that carrots are tasty holds according to John but not according to Mary.

To summarize, we now have faultless contradiction and disagreement. With the notion of being 'at fault' as defined above, we have faultlessness for discretionary claims that make a cut among refinements of the relevant world. We also have genuine contradiction (because the 'X is tasty' and 'X is not tasty' express contradictory propositions) so we can account for the intuition that in the chili dialogue, the parties have contradicted each other, and yet neither has said something false. In this sense, we have what would more accurately be called 'faultless contradiction'. We furthermore have disagreement (when one agent accepts and another rejects the same proposition at the same world/outlook). Putting this together with the Maxim of Quality, we obtain the conclusion that the chili dialogue also involves what can genuinely be called 'faultless disagreement'.

3.4 Faultless disagreement in world-judge relativism

Several authors have argued that world-judge relativism does not actually deliver faultless contradiction (or disagreement). Stojanovic (2007), for example, argues that relativism (as implemented by Lasersohn, etc.) does not actually explain the 'disagreement' of 'faultless disagreement', based on the assumption of *semantic competence* (SC): that speakers of English are semantically competent with predicates of taste. Concerning a disagreement dialogue between Tarek and Inma, she writes (p. 697):

> Now, if Tarek intends the content that he is asserting to be evaluated for truth at himself, and if Inma intends her content to be evaluated for truth at herself, that will undermine the idea that their disagreement is genuine and rational. Both of them, given SC, know that one and the same content may take different truth values when evaluated at different judges. They also know that one's assertion and the other's denial of the same content are inconsistent only when evaluated with respect to the same judge. Hence if each party intends the asserted content to be evaluated at himself or herself, and if this is mutually clear between them, then they will realize that there is no clash in truth value between their claims (when evaluted as they intend them to be), and that their "disagreement" is thus nothing more than a divergence in preferences.

In other words, if we have faultlessness, then we can't have genuine disagreement at the same time. Faultlessness depends on having different intended judges, and if we have different intended judges, then we're not disagreeing. Other authors have expressed similar doubts; these include Rosenkranz (2008), Moruzzi (2008), Cappelen and Hawthorne (2009), and Moltmann (2010). To the extent that this criticism holds water, world-judge relativism (as implemented by its proponents) does not actually do what it sets out to do.

Although it is typically directed to *relativism* in general, this criticism only applies to *world-judge relativism*, at least as put forth by its proponents. Stojanovic (2007) also says in footnote 3 that her critique of relativism applies to Kölbel's (2002) proposal as well, but does not explain why. As we have just seen in detail, it does not apply to outlook-based semantics.

I must note that, as pointed out by a reviewer, an analogous move *can* be made within the framework of world-judge relativism, although to my knowledge this move has not been made. One can define subjective propositions as those for which there are pairs $\langle w, j \rangle$ and $\langle w, j' \rangle$ such that $j \neq j'$ and the proposition is true according to the former and not the latter (*judge-variant propositions*, as opposed to *judge-invariant propositions*, in Sæbø's 2009 terminology), and maintain the idea that only objective propositions are subject to the norm of accuracy. So there is in fact a way to address Stojanovic's criticism within the technical bounds of world-judge relativism.

Note that in order to make this work, it would be important to make sure that the model includes a fully-opinionated judge for every possible combination of opinions, so as to avoid the consequence that certain combinations of opinions are ruled out by necessity. This means that the set of agents in the model must be expanded beyond what we have independent reason to posit. It is also not clear whether this maintains the spirit of world-judge relativism. The idea behind world-judge relativism seems to be that something can be 'true for you' but not 'true for me', which leads naturally to an approach to faultlessness where the applicability of a statement is restricted to a certain judge or standard (or set thereof). The assumption that a discretionary statement represents oneself, or the agent whose perspective one is taking, seems integral to the philosophical motivation for world-judge relativism.

3.5 Subjective attitude verbs

Now let us return to subjective attitude verbs. As we have seen, the distribution of *tycka* is narrower than that of English *think*, favoring discretionary predicates. This sensitivity can be implemented in outlook-based semantics straightforwardly, as Sect. 3.5.1 will show. In Sect. 3.5.2 I argue that world-judge relativist approaches have problematic consequences that outlook-based semantics avoids.

3.5.1 Subjective attitude verbs in outlook-based semantics

Before giving a formal treatment of subjective attitude verbs, let us consider more carefully what precisely the condition on *tycka* is. The data we have considered so far can be captured using the following simple generalization: *tycka* may take a given clause as its complement if and only if the proposition the clause expresses is discretionary. Another imaginable hypothesis is that *tycka* requires its complement to be *strongly* discretionary. On the face of it, the following example would seem to argue for the former, as it suggests that 'hybrids', which are objectively false at some worlds, can be embedded under *tycka*:

(15) Ebba tycker att Jonas är en sexig lingvist.
'Ebba thinks$_{[\text{opinion}]}$ that Jonas is a sexy linguist.'

However (as a reviewer points out), this example is only fully acceptable in a context where it is taken as given that Jonas is a linguist. We can see this if we negate the sentence or ask it as a question:

(16) Ebba tycker inte att Jonas är en sexig lingvist.
'Ebba doesn't think$_{[opinion]}$ that Jonas is a sexy linguist.'

(17) Tycker Ebba att Jonas är en sexig lingvist?
'Does Ebba think$_{[opinion]}$ that Jonas is a sexy linguist?'

All of these imply that Jonas is a linguist. A similar observation is made by Bouchard (2012b) for *find*. With reference to examples such as (18), Bouchard writes that "the non-subjective component of the complement clause is presupposed, not asserted".

(18) John finds that Mike gave a great class yesterday.

As Bouchard demonstrates using ordinary projection tests, the implication that Mike gave a class yesterday projects. Obligatory projection of the non-subjective content can be understood under the following assumption:

(19) **Condition on felicitous use of *tycka***
Relative to the common ground, the complement of *tycka* must be strongly discretionary.

What this means exactly will be spelled out in more detail below, but the idea is that any non-discretionary content should be presupposed.

Further support for the correctness of (19) comes from coordination. A version of (17) with the discretionary and non-discretionary components separated out into individual conjuncts is not acceptable:

(20) #Ebba tycker att Jonas är sexig och en lingvist.
'Ebba thinks$_{[opinion]}$ that Jonas is a sexy and a linguist.'

This is of the same structure as Sæbø's (2009, p. 338) conjunctive example:

(21) #She finds him handsome and below 45.

(See also Fleisher 2013; Hirvonen 2014 for discussion of this example). Sæbø (2009) accounts for this in terms of a type clash. Such a treatment is not available in outlook-based semantics, because discretionary and non-discretionary propositions are of the same semantic type here: both are sets of outlooks. The fact that such a route is not available in the present framework might be seen as an advantage, however, given the combinability of discretionary and non-discretionary predicates in intersective modification cases like the 'sexy linguist' example. But an account in terms of presupposition appears viable. Note that generally, the content contributed by a conjunct may not be presupposed. Consider the following contrast:

(22) He is a linguist. And he is a sexy linguist.

(23) He is a linguist. #And he is sexy, and (he is) a linguist.

If there is a general ban on individual conjuncts contributing solely presupposed material, then doing so will lead to a clash.

Kennedy and Willer (2016, p. 12) explain the unacceptability of examples like (20) using the assumption that "the complement of an attitude ascription not only expresses a proposition but also highlights a set of *issues*," and that subjective attitude verbs presuppose that each of the issues raised by the prejacent are discretionary. As they point out, this idea also sheds light on the following contrast, noted for Norwegian *synes* by Sæbø (2009):

(24) Hon tycker att alla rökare är otrevliga.
'She thinks$_{[\text{opinion}]}$ that all smokers are unpleasant.'

(25) #Hon tycker att alla som är trevliga är icke-rökare.
'She thinks$_{[\text{opinion}]}$ that everyone who is pleasant is a non-smoker.'

Kennedy and Willer (2016) discuss the following variant of this contrast:

(26) Kim finds everyone who is not vegetarian unpleasant.

(27) #Kim finds everyone who is pleasant vegetarian.

As they put it, given the "reasonable assumption" that 'everyone who is not vegetarian is unpleasant' and 'everyone who is pleasant is vegetarian' are equivalent, they should be equally embeddable under *find* under any account that is sensitive only to the nature of the proposition expressed by the complement. Kennedy and Willer (2016) point out that their account in terms of the issues raised by the prejacent offers a uniform explanation for the coordination case and the quantification case, in contrast to Sæbø's (2009) solution in terms of Quantifier Raising, which only applies to the quantification case. Kennedy and Willer offer a formal implementation on which:

- an atomic formula raises the issue corresponding to the question formed by abstracting over any free variables it contains;
- the set of issues raised by a sentence of the form $\phi \wedge \psi$ is the union of the issues raised by ϕ and ψ individually; and
- the set of issues raised by a quantificational sentence of the form $Q(\phi, \psi)$ is the set of issues raised by ψ.

They formulate these principles in terms of a logical language, using $\wedge$ rather than natural language *and*, among other symbols not found in natural language. This raises the question of how to handle intersective modification. Assuming an intersective interpretation, a logical representation for *John is a sexy linguist* presumably involves logical *and* ($\wedge$). And yet this sentence ostensibly does not raise the issue of whether John is a linguist, given that it can be embedded under *tycka*. This seems to show that the formula for computing the issues raised must make reference to natural language *and*, rather than logical *and*. So what seems to be needed is a refinement of the Kennedy/Willer account which defines the issues raised more in terms of the natural language structure. (This would take us into the realm of articulating a theory of Gricean manner, a generally underexplored area.) I will not attempt such a theory here. But given such a theory, the coordination case can be explained through the interaction of the following principles:

1. The complement of *tycka* must be strongly discretionary relative to the common ground.
2. Each natural language conjunct (typically) raises its own issue.
3. It is inappropriate to raise an issue that is already settled in the common ground (cf. Groenendijk and Roelofsen's (2009) Maxim of Inquisitive Sincerity).

With the 'handsome and below 45' example (21), the second principle will require that the 'over 45' conjunct raises the issue of whether the man in question is over 45. The third principle then requires that this issue is not settled in the common ground. Against the background of such a common ground, the proposition expressed by the complement of the subjective attitude verb will not be strongly discretionary. Hence a crash.

Of these three requirements, I will only formalize the first here. Before getting to the notion of being discretionary relative to an information state such as the common ground, let us first introduce presupposition. The subjectivity requirement of *tycka*, like other selectional requirements, is natural to see as a presupposition. Indeed, this requirement behaves as such, surviving negation and other entailment-cancelling operators.

(28) #Jag tycker inte att det är tisdag idag.
'I don't think$_{[\text{opinion}]}$ it's Tuesday today'

(29) #Om du tycker att det är tisdag idag, så har du fel.
If you think$_{[\text{opinion}]}$ it's Tuesday today, then you're wrong.

Assuming that presupposition failure implies that the sentence lacks a classical truth value, 'a tycker ϕ' has a classical truth value only in those contexts where ϕ expresses a strongly discretionary proposition.[13] Where defined, it is then true at an outlook only if a accepts ϕ at that outlook.[14]

[13] This analysis implies that whether or not a given statement counts as discretionary is something that holds or not according to an outlook. According to the non-ambitious way of distinguishing between objective and discretionary, a given statement is *necessarily* either objective or discretionary, i.e. one way or the other at every outlook, given a model. But it is not clear to me that the very discretionariness of a statement is a matter of fact; rather, I suspect that there may be room for reasonable disagreement in some cases. Indeed, we find: *Jag tycker inte/fortfarande att det är en åsiktsfråga.* 'It is not/still my opinion that this is a matter of opinion.'

[14] The Swedish verb *tro* 'believe', I believe, presupposes that its complement is non-discretionary. Prima facie this would predict non-overlap in the distribution of *tycka* and *tro*, but in fact they are both acceptable in many cases:

(1) Jag tror/tycker att soppan är god.
'I believe/think$_{[\text{opinion}]}$ that the soup is good.'

(2) Jag tror/tycker att det är viktigt.
'I believe/think$_{[\text{opinion}]}$ that it is important.'

I would like to claim that cases of overlap between *tro* and *tycka* can be due either to coercion or ambiguity. The former case is exemplified by (1), where the complement gets coerced into an objective interpretation like *The soup is good according to people in general*. But *according to people in general* is not always how apparently discretionary predicates are interpreted under *tro*. In cases like (2), the choice appears to depend on whether importance is treated as discretionary or non-discretionary. That X is important for Y can be seen as an objective, scientific claim, rather than a statement of opinion: that it has a predictable impact on Y. So *viktigt* is a vague predicate that can be construed either as discretionary or as non-discretionary.

Since we have introduced the notion of presupposition, we must adjust our definitions of proposition and what it means to express a discretionary proposition. As hinted earlier, we will now treat a proposition as a function from outlooks to truth values, where the truth values may include T, F, and #. The proposition expressed by ϕ in context c is that function f from outlooks to truth values such that for all outlooks o, $f(o) = [\![\phi]\!]^{c;o}$. Then we need to redefine the notion of discretionary with this complication in mind. A proposition that assigns o to T and o' to F where o and o' are refinements of the same world surely must be considered discretionary. In fact, that is all we need to say. Discretionary propositions assign heterogeneous classical truth values within a refinement class; objective propositions assign homogenous classical truth values within a refinement class.

Officially, we have the following revised definitions (against the background of a set of worlds $\mathcal{W}$ and a set of outlooks Ω and a one-to-one relation $\propto$ between worlds and their refinement classes):

- **Proposition (revised)**
  A *proposition* is a (total) function from outlooks to truth values.
- **Objective proposition (revised)**
  A proposition p is *objective* if there is no $w \in \mathcal{W}$ such that there are refinements $o, o' \in \Omega$ of w such that $p(o) = \text{T}$ and $p(o') = \text{F}$.
- **Discretionary proposition (revised)**
  A proposition p is *discretionary* iff there is some $w \in \mathcal{W}$ such that there are refinements $o, o' \in \Omega$ of w and $p(o) = \text{T}$ and $p(o') = \text{F}$.
- **Strongly discretionary proposition (revised)**
  A proposition p is *strongly discretionary* iff for all $w \in \mathcal{W}$, there are refinements $o, o' \in \Omega$ of w such that $p(o) = \text{T}$ and $p(o') = \text{F}$.

Against the background of these revised notions, let us now define the notion of being objective or discretionary relative to a given information state, such as the common ground:

- **Information state**
  An *information state* is a set of outlooks.
- **C-restricted refinement class**
  Where C is an information state, the C-restricted refinement class of a world w, written $w \restriction C$, is the set of outlooks in C that are refinements of w.
- **Objective relative to an information state**
  A proposition p is *objective relative to an information state C* iff there is no w such that $o, o' \in w \restriction C$ and $p(o) = \text{T}$ and $p(o') = \text{F}$.
- **Discretionary relative to an information state**
  A proposition p is *discretionary relative to an information state C* iff there is some w such that $o, o' \in w \restriction C$ and $p(o) = \text{T}$ and $p(o') = \text{F}$.
- **Strongly discretionary relative to an information state**
  A proposition p is *strongly discretionary relative to an information state C* iff for all w such that $w \restriction C$ is non-empty, there are $o, o' \in w \restriction C$ such that $p(o) = \text{T}$ and $p(o') = \text{F}$.

Thus, relative to an information state, a strongly discretionary proposition makes a cut within all of the worlds that are not ruled out by that information state.

One further technical assumption is necessary in order to implement the requirement that the complement of *tycka* be strongly discretionary relative to the common ground, because our formal system must have access to the common ground as a whole. The presupposition to be encoded is not a pointwise requirement on each of the worlds in the common ground; the property of discretionariness can only be evaluated via quantification over the whole set of outlooks. Hence, evaluation of the truth and definedness conditions cannot be carried out in a standard static framework that evaluates truth relative to a single point of evaluation. Therefore, emboldened by Stalnaker's (2014) encouragement to do so, I will henceforth use the common ground as an additional parameter of evaluation.

The fragment in Sect. 5 defines a formal language in which the extension of an expression is determined in relation to a model M, a context of utterance c, a context set C, an assignment g, and an outlook o. The model M determines among other things a set of outlooks Ω, a set of worlds W, and a relation $\propto$ between them which determines which outlooks are refinements of which worlds. The *proposition expressed by* ϕ (or *intension* of ϕ) relative to M, c, C, and g, written $[\![\phi]\!]^{M,c,C,g}_{\mathfrak{C}}$ is that function f such that for all $o \in \Omega$, $f(o) = [\![\phi]\!]^{M,c,C,g,o}$. Relative to M, c, C, and g, what *tycka* requires of its complement ϕ is that the proposition $[\![\phi]\!]^{M,c,C,g}_{\mathfrak{C}}$ is strongly discretionary relative to C. The formal language contains a constant encapsulating this notion:

(30) $[\![\textbf{discretionary}(\phi)]\!]^{M,c,C,g,o} = \text{T}$ iff $[\![\phi]\!]^{M,c,C,g}_{\mathfrak{C}}$ is strongly discretionary relative to C

The formal language also includes $\Box$ and $\Diamond$ operators parameterized by an agent, capturing modal necessity and possibility in relation to the agent's doxastic accessibility relation. Thus if α denotes agent a, then $\Box_\alpha\phi$ means that ϕ holds in all of a's doxastically accessible outlooks; that is, a accepts the proposition expressed by ϕ (in the relevant context of utterance), in the technical sense defined above. Both English *think* and Swedish *tycka* are translated into the formal language (indicated by $\rightsquigarrow$) using the $\Box$-operator; the only difference is that *tycka* incorporates a discretionariness presupposition.

The system (whose compositional details are given in Sect. 5) derives the following translations:

(31) α *thinks* $\phi \rightsquigarrow [\Box_{\alpha'}[\phi']]$

(32) α *tycker* $\phi \rightsquigarrow [\partial(\textbf{discretionary}(\phi')) \wedge \Box_{\alpha'}[\phi']]$

where α' is the translation of α and ϕ' is the translation of ϕ. The ∂ operator seen in these lexical postulates delivers 'undefined' if its complement is not true, and the logic is defined in such a way that conjoining a formula with an undefined truth value with any other formula yields a formula with an undefined truth value, so the inference typically projects. (See Beaver and Krahmer 2001). A sentence containing the verb *tycka* will thus typically be undefined unless its complement is discretionary in the required way.[15]

[15] There is some evidence that this presupposition can be filtered: *Om det är en åsiktsfråga, så tycker jag att det är osannolikt.* 'If it's a matter of opinion, then I think$_{[\text{opinion}]}$ that it's unlikely.'

A natural question that arises now is what happens in case the complement itself contains a presupposition. Take the following example (suggested by a reviewer):

(33) Jag tycker att det är förjävligt att han dumpat henne.
'I think$_{[opinion]}$ it's terrible that he dumped her.'

is defined only with respect to those outlooks where he dumped her. (That set corresponds to an objective proposition). Among the remaining ones, it crosscuts the worlds. Thus in this case it is correctly predicted that the example is felicitous.

Examples in which the ordinary semantic content is objective and a subjective proposition is presupposed behave like objective statements.

(34) Jag tror/#tycker att hon inte bryr sig att han är en idiot.
'I believe/think$_{[opinion]}$ that she doesn't care that he is an idiot.'

This is correctly predicted by the theory. Although the set of outlooks for which the proposition is defined cuts across world boundaries, there are no two refinements of the same world such that the proposition is true at one and false at the other.

Before moving on, let us briefly consider the contrast between *find* and *consider*. Kennedy and Willer (2016) note that both *find* and *consider* are subjective attitude verbs, as evidenced by the following contrasts:

(35) #Kim $\left\{\begin{matrix}\text{finds}\\ \text{considers}\end{matrix}\right\}$ the sum of two and two equal to four.

(36) Kim $\left\{\begin{matrix}\text{finds}\\ \text{considers}\end{matrix}\right\}$ Lee fascinating, because he is an expert on oysters.

However, they differ in their distribution as well:

(37) Kim $\left\{\begin{matrix}\text{\#finds}\\ \text{considers}\end{matrix}\right\}$ Lee vegetarian,
because the only animals he eats are oysters.

Kennedy and Willer (2016) put this forth as a problem for outlook-based semantics, as no distinction is made here between different types of subjective attitudes. But of course the framework is not in principle incompatible with the possibility that different verbs impose different requirements on their complement above and beyond being discretionary. Furthermore, a solution to the problem that is parallel in structure to Kennedy and Willer's is available in this framework. Kennedy and Willer propose that *find* is *radically counterstance-contingent*, which in the present framework translates as *strongly discretionary*, while *consider* is merely counterstance-contingent, i.e., merely discretionary. I consider it an open question what exactly the difference between *find* and *consider* is, but the framework does not appear to me to be any less suited to an account of it than Kennedy and Willer's.

3.5.2 Subjective attitude verbs in world-judge relativism

Let us now compare this to treatments of subjective attitude verbs in world-judge relativism. There are (at least) two different kinds of treatments, one which makes

reference to a doxastic accessibility relation involving centered worlds where the centers are judges (Stephenson 2007a, b; Lasersohn 2009), and another involving 'radical judge shift' (Sæbø 2009; Bouchard 2012a; Bylinina in press).

An example in the former category builds on Stephenson's (2007a) analysis of *think*, which implements a Lewisian account of *de se* belief (Lewis 1979). (See Lasersohn 2009, among others, for a similar proposal). Abstracting away from the time parameter of the index, this account relies on the assumption that agents have a range of doxastically accessible centered worlds, where a centered world determines both a possible world and an agent standing at the center of the world. For a centered world $\langle w', x' \rangle$ to be doxastically accessible to x in w is for x in w' to consider it possible that he might be x' in w'. Which centered worlds are doxastically accessible depends on which centered world one is in; for any given pair $\langle w, x \rangle$ there is a set of centered worlds doxastically accessible to x at w (the set of pairs $\langle x', w' \rangle$ such that x believes x might be x' in w'). The proposition expressed by 'a thinks ϕ', where ϕ denotes a centered worlds proposition, is the set of centered worlds $\langle w, j \rangle$ such that every centered world doxastically accessible from $\langle w, a \rangle$ is one where ϕ holds. In the application of centered worlds to predicates of personal taste, the agent component plays the role of the judge for matters of opinion.

The restriction of subjective attitude verbs to discretionary contents may then be implemented as a separate constraint. One natural possibility would be to stipulate that subjective attitude verbs require the content to be a non-constant function from judges. Stephenson actually advocates a different solution. As Sæbø (2009) writes (p. 334), "while Stephenson does not treat *find* in her paper (2007a), in her dissertation (2007b) she does. Here, she suggests that this verb differs from *think* in the extra requirement that the subject have direct experience of the argument proposition." Sæbø (2009) criticizes this treatment, pointing out that on this analysis, "[*Homer finds himself gay*] should be good, as Homer can have the most direct evidence possible of his own sexual orientation."

Although he ultimately argues against relativism in favor of a kind of contextualism, Sæbø (2009) sketches an alternative world-judge relativist treatment of Norwegian *synes* along the following lines: *a synes* ϕ, where ϕ is evaluated with respect to both a world and a judge, is true with respect to w and j if and only if ϕ is true with respect to w and a. According to this approach, the reason *synes* cannot be used with objective propositions such as 'dinosaurs are extinct' is that "the whole attitude is redundant". Because objective propositions are judge-invariant, the embedded clause expresses the same proposition as the matrix clause. As Bouchard (2012a, p. 164) points out, "[w]e would…need a theory of how redundancy can make sentences infelicitous, under which conditions it does, etc., before we can use this property to exclude [uses of subjective attitude verbs with non-discretionary complements]." Bouchard (2012a) nevertheless gives a variation on this account involving a presupposition of all non-subjective information in the complement clause.[16] His explanation also appeals to a slightly different kind of redundancy: "every sentence where the complement of *find*

[16] A detailed critique of Bouchard's approach would take us too far astray, but I think that there are counterexamples to his generalization that the non-subjective part of the complement clause is presupposed. To paraphrase Hillary Clinton: "Donald Trump thinks he has great ideas. I don't think he even has ideas."

is not a subjective statement will have as its assertion exactly the same proposition as its presupposition" (p. 168).

A problem that all of these world-judge relativist treatments of subjective attitude verbs share derives from the fact that judges are totally opinionated. This means that the following example is predicted to be self-contradictory:

(38) Det är inte så att jag tycker att det är viktigt, men jag tycker inte att det inte är viktigt heller.
'It's not the case that I'm of the opinion that it's important, but I'm not of the opinion that it's not important.'

This is not contradictory, because real-life human beings are sometimes not opinionated. Under a Sæbø or Bouchard-style account, which does not appeal to a doxastic accessibility relation, (38) would be analyzed as follows. Let ϕ stand for *det är viktigt* 'it's important' and $\neg\phi$ for its negation. *Jag tycker att det är viktigt* 'I am of the opinion that it is important' denotes the set of world-judge pairs $\langle w, j\rangle$ such that ϕ holds according to $\langle w, sp\rangle$, where sp is the speaker. The negation would be the complement of that set, those world-judge pairs such that ϕ does not hold according to the speaker in the world. *Jag tycker att det inte är viktigt* 'I am of the opinion that it is not important' denotes the set of world-judge pairs $\langle w, j\rangle$ such that $\neg\phi$ holds according to $\langle w, sp\rangle$, and the negation would be the complement of that set, those world-judge pairs where ϕ holds according to the speaker in the world. Since for every pair $\langle w, j\rangle$ either ϕ holds or $\neg\phi$ holds but not both, the two clauses contradict each other.

A Stephenson-style approach stands a better chance. We can model lack of opinionatedness through the doxastic accessibility relation, and say that if, at a centered world $\langle w, x\rangle$, x isn't of the opinion that ϕ but isn't of the opinion that $\neg\phi$, then there are doxastically accessible worlds $\langle w', x'\rangle$ and $\langle w'', x''\rangle$ such that ϕ holds at $\langle w', x'\rangle$ and $\neg\phi$ at $\langle w'', x''\rangle$. But there is still a problem: Lack of opinionatedness entails either that one doesn't know which world one is in or that one doesn't know which individual one is. Recall that for a centered world $\langle w', x'\rangle$ to be doxastically accessible to x in w is for x in w' to consider it possible that he might be x' in w'. In principle, it is conceivable that one has perfect knowledge of the facts, and still has no opinion on some issue. Yet on this kind of centered worlds approach, this would mean that lack of opinionatedness would entail imperfect knowledge of one's identity.

Now, one might reinterpret these judges as abstract "stances", rather than particular individuals. This would bring the world-judge relativist treatment much closer to the account advocated here. Indeed, an outlook can be determined by a pair consisting of a world and an additional element on which the extensions of all discretionary predicates depends. This could be called a "judge". But under such an interpretation of "judge", it would no longer be possible to treat, for example, proper names like *John* or implicit personal pronouns as potentially judge-denoting expressions, so the system would have to undergo non-trivial revisions.

Outlook-based semantics offers a simple framework in which the required revisions are already implemented. Lack of opinionatedness in outlook-based semantics is parallel to lack of belief in a formula or its negation in epistemic logic: If an agent is not opinionated with respect to ϕ, then there is one accessible outlook for the agent where ϕ holds, and another one where ϕ does not hold.

4 Pragmatics

Stalnaker (1978, p. 85) wrote that "to engage in conversation is, essentially, to distinguish among alternative possible ways that things may be". This idea is still current today. Roberts (1996), for example, developing an influntial model of discourse based on Questions Under Discussion extended by Büring (2003) and Farkas and Bruce (2010), among others, takes this idea and suggests that the great overarching question by which all discourse is guided is "What's up?" (i.e., "What is the way the world is?").

Yet this idea is plainly false (like many idealizations in science). The questions that we discuss (to the extent that we discuss questions) do not always concern the alternative possible ways that the actual world may be. Meeting a colleague accidentally on the train after a talk recently, filling time as the train entered the station, I said, "That talk was very interesting today!" The purpose of this remark was not to inform my colleague (very much my senior) that the talk was interesting. It was not helping her locate the actual world within epistemic space. It was an invitation to establish *common ground*, not in the strict Stalnakerian sense—in a more colloquial sense—but a sense that I will nevertheless formalize in a strictly Stalnakerian manner.

Egan (2010, pp. 10–11) puts the point more eloquently and colorfully.

> One very major role that aesthetic discourse plays is a sort of connection-building role, in which people discover commalities in the sorts of things that they enjoy, appreciate, or despise. This can be a substantial part of the process of building and maintaining relationships, and in establishing and maintaining ties to communities and groups. Very many groups and subcultures are defined, at least in part, by the common aesthetic sensibilities of their members (and the contrast between their shared aestheic sensibilities of their outsiders). Think of, for example, such subcultures as goths, punk rockers, ravers, trekkies, bikers, and so on.
>
> I propose that we should think of this effect of successful aesthetic assertions, and successful resolutions of aesthetic disputes, of inducing mutual self-attribution of certain dispositions to have a particular sort of response to a particular (kind of) object, as the central business of assertions and disputes about taste, and not as a mere side effect.

Relativism (both of Egan's variety and the kind to be advocated here) helps to explain the connection-building (and breaking) role of conversation. It implies that the big question is not "What's up?" but rather something more like, "How do we see things?" In other words, as Egan (2010) puts it, the participants are "trying to align their world views, not only with regard to factual beliefs […], but also with regard to subjective matters such as what is tasty".

It goes along with this view that to assert a discretionary proposition is to make a proposal for the whole group of interlocutors to take up. So stating one's opinion by saying 'I think ϕ' is quite different, pragmatically, than directly asserting ϕ. The latter is a proposal that ϕ go in the common ground. Such a proposal will only be successful

if one can get one's interlocutors to go along with it. Here is an example where bald 'ϕ' is safe, so to speak[17]:

(39) F: We take the next one
A: Yes, this is not so good either
B: Here we have a good example of bad music then
A: But this is really bad music
B: Yes this is bad music

In the following case, consensus is not likely to be formed around ϕ, and the form using a hedge is used instead.

(40) F: Is this something you like?
A: It's bloody good music actually
B: [LAUGHS] I don't think it's that good. I don't think that there's any melody really, to dig to.

It would have been quite different if B had said, "It's not that good," without a hedge. In that case, B would not only have been rejecting A's proposal, but also making a *counter-proposal* to put the opposite proposition into the common ground. The only way for that to work would be for A to change his mind or defer to B's authority.

In case of a power difference between the interlocutors, it may be that what goes in the common ground is actually in conflict with one participant's outlook. It might even be public that one of the participants does not share the opinion in question, but still goes along with it. In a conversation with Kim Jong Un, for example, one would normally allow his opinions to go on record as the final word, regardless of what one thinks oneself. To say *No, ϕ!* might be fine among friends, or when it is clear that resolving the issue does not have high stakes, or when one is taking a position that is flattering to the interlocutor or self-deprecating, as in the following cases:

(41) Mr-BREHIER: Here we go. Wait until you taste that. Now we can serve it plain like that or with an old chutney made with pecans, cilantro. It's a little hot, huh?
APPLEGATE: No, it's wonderful.

(42) A: Why? Why would you do that?
B: Because I didn't wanna be ugly anymore.
A: Oh, baby. You're not ugly.
B: Yes, I am. I know you don't think so, but I am.

But otherwise, to contradict a discretionary assertion requires a certain amount of chutzpah. One is not just making an assertion about one's own tastes; one is making a proposal that is going to count for the whole group.

There are some apparent exceptions. Pearson (2013, p. 118) argues that "[an] agent's tastes are relevant unless something about the context renders them irrelevant—not having tasted the item, perhaps, or not being among its 'target audience'." For example, consider Pearson's (31) and (32):

[17] Examples and observation from Blomqvist (2014), originally in Swedish, from a led group discussion with teenagers about their tastes in music.

(43) a. #The cake must be tasty, but I wouldn't like it.
b. The cake must be tasty, but I wouldn't like it because I don't like chocolate.

The speaker's unusual tastes seem to render her tastes irrelevant to whether the cake is tasty. In such a case, however, the speaker would presumably nevertheless be "disposed to act as if he assumes or believes that the proposition is true," as Stalnaker (1978, p. 84) puts it. So it still becomes common ground, and a commitment of the speaker, that the cake is tasty in such a case (assuming this is an entailment of *The cake must be tasty*).

Another fact supporting Pearson's generalization is the contrast between (44) and (45).

(44) Mary thinks that John thinks that the cake is tasty.

(45) The cat thinks that John thinks that the cat food is tasty.

In (44), we get a clear implication that the cake is tasty to John, whereas (45) could be used to describe a situation in which John keeps buying a certain kind of cat food for his cat, leading the cat to form the belief that John believes that the cat food is tasty to the cat, but does not, of course, enjoy eating the cat food himself. Being a human, rather than a cat, John's tastes are not relevant to whether the cat food is tasty. Interestingly, (45) would have to be translated with *tro* 'believe' rather than *tycka* into Swedish:

(46) a. Katten tror att John tror att kattmaten är god.
b. #Katten tror att John tycker att kattmaten är god.

The version with *tycka*, (46b) clearly implies that John has tasted and enjoys the cat food. This suggests that in (45), the embedded sentence is not interpreted as a discretionary proposition, and has undergone some kind of coercion to an objective proposition, perhaps about the cat's tastes. I therefore do not believe that these cases a problematic for the view that discretionary assertions concern the whole group of interlocutors, insofar as they commit the participants to being disposed to act as if they assume or believe that the proposition is true.

So, whenever ϕ is interpreted as expressing a discretionary proposition, asserting ϕ constitutes a proposal to enter the proposition it expresses into common ground, and this requires acceptance by all interlocutors. In this respect bare ϕ differs from 'I think$_{[\text{opinion}]}$ that ϕ'. The group-relevance of ϕ is clearly not captured by a simple-minded contextualist view, on which bare ϕ is equivalent to 'I think that ϕ'. World-judge relativists have provided accounts for this fact, these accounts are problematic in a way that outlook-based semantics is not, as I will argue presently.

Within a world-judge relativist framework, Stephenson (2007a) implements the idea that conversation is about word-view alignment, although in a slightly problematic way. Under Stalnaker's view, the context set is a set of possible worlds. This follows from thinking of possible worlds as the circumstances of evaluation for a sentence. In world-judge relativism, the circumstances of evaluation are world-judge pairs, or

world-time-judge triples. Accordingly, Stephenson (2007a) proposes to "[…] treat the context set as a set of world-time-judge triples instead of worlds or world-time pairs" (p. 509). She then stipulates that "for all the triples in the context set for a conversation, the judge element represents the plurality of the group of participants in the conversation".

But in that case, we might as well leave out the judge from the elements of the context set, and just have a set of possible worlds, since the judge element is not informative. Why do we have a semantics allowing for different judges, if it is always taken for granted that the only judge in the universe of possible judges is the plurality consisting of the conversational participants? Schaffer (2011, p. 182) makes a similar point: "If all the propositions of interest are perspective-specific, then adding a perspective coordinate into truth evaluation will do no work".

The same criticism applies to Egan's (2007) proposal, where the context set is construed as a set of world-judge pairs just as under Stephenson's treatment, and the idea that sentences express sets of world-judge pairs is considered. Egan shows that the only such assertions that do not have a *tragic* effect on the context set (a technical notion describing an undesirable effect, where individual judges are left "stranded" apart from the worlds that they in fact occupy) are ones for which there is a certain presupposition of similarity among the participants with respect to the proposition expressed by the sentence. He surmises that such a presupposition is almost always in place for epistemic *might* sentences, which he takes to express a set of world-judge pairs.[18]

The group-relevance of discretionary assertions follows automatically from a very simple and standard model of discourse. In a nutshell, we are *seeking a common outlook*. We capture the group-relevance of discretionary assertions essentially by taking the received Stalnakerian view on presupposition and assertion and replacing the word "possible world" with the word "outlook". Following Stalnaker (1978, p. 84), we can say that a proposition is *presupposed* if and only if it is common ground among the participants in the conversation:

> A proposition is presupposed if the speaker is disposed to act as if he assumes or believes that the proposition is true, and as if he assumes or believes that his audience assumes or believes that it is true as well. Presuppositions are what is taken by the speaker to be the *common ground* of the participants in the conversation[.]

Furthermore, if a proposition is presupposed then it holds according to every element of the context set.[19]

[18] Ninan (2010) discusses another approach to the problem, which goes beyond the framework of world-judge relativism. I leave a systematic comparison of outlook-based semantics to Ninan's framework for future work.

[19] Note that there is an important difference between the context set and the context of utterance. The context set is a set of circumstances of evaluation, representing the common information or shared assumptions, while the context of utterance specifies parameters about the here and now of the utterance, such as the speaker and the hearer. As Kaplan (1978) says, a context of utterance always designates a speaker, but a given circumstance of evaluation might lack one.

Recall that under Stalnaker's view, the context set is a set of possible worlds and that this follows from thinking of possible worlds as the circumstances of evaluation for a sentence. In this outlook-based framework, *the context set is a set of outlooks*. The elements of the context set are viewed by Stalnaker as the live options as to where the actual world might lie according to the conversational participants. Here things are different: There is no 'actual outlook', because there is no privileged answer to the question of whether frog legs *actually* are tasty. Since there is no 'actual outlook', we must think of the context set slightly differently in the present setting, perhaps as the live options as to *a common outlook*. The essential purpose of a converation becomes then, in a sense, to *find a common outlook*.

Assertion may also be thought of in a Stalnakerian way. Stalnaker (1978, p. 86) says that the essential effect of an assertion is to reduce the context set in a particular way.

> To make an assertion is to reduce the context set in a particular way, provided that there are no objections from the other participants in the conversation. The particular way in which the context set is reduced is that all of the possible situations incompatible with what is said are eliminated. […] This effect is avoided only if the assertion is rejected.

Following Clark and Schaefer (1989), Clark (1992), Ginzburg (1996, 2012), Farkas and Bruce (2010), and many others, let us make a slight refinement to this (orthogonal to the use of outlooks) in order to clearly distinguish between the actual making of the assertion and its successful uptake, and say that to *assert* a proposition is to make a certain kind of proposal, namely a proposal to reduce the context set so that everything incompatible with the proposition is eliminated. We may then say that an assertion is *successful* if the proposal is accepted and the context set is reduced in this way.

If the proposal is accepted, then the assertion becomes common ground. This means that all participants in the conversation are publicly committed to it. Now, because an assertion reduces the context set so that the content of the assertion becomes a presupposition, and because presuppositions are propositions that all interlocutors are publicly committed to, a successful assertion bears on the outlooks of all of the interlocutors. It follows that successful assertion depends on consensus, so it is best to avoid making assertions that will not make it into the common ground. This predicts that people will say 'ϕ' instead of 'I think that ϕ' more when 'ϕ' is likely to be accepted, as shown above.

Thus outlook-based semantics affords a simple and unified theory of assertion that handles both discretionary and non-discretionary content. World-judge relativism does not.

Further assumptions about pragmatics are straightforwardly integrated into outlook-based semantics as well. Above, we implemented a Maxim of Quality, and maxims of Quantity and Relation can be formalized straightforwardly in the standard way as well, for example in the style of Groenendijk and Stokhof (1984) and Groenendijk and Roelofsen (2009) using questions under discussion (QUDs), where questions are sets of propositions (hence set of sets of outlooks). The Maxim of Relation can be formalized as a requirement that the contribution at least partially resolve the

QUD (where *resolve* has a technical meaning), and Quantity can be formalized as a requirement that the speaker choose the strongest of the assertions that satisfy Quality and Relation. Since outlooks are formally and functionally identical to possible worlds, it is easy to adapt existing theories to this framework.

5 Formal system

What follows is a small fragment of English with outlook-based semantics. In the style of Montague's "The Proper Treatment of Quantification in Ordinary English," we will define a language $\mathcal{L}$, and then specify translations from natural language expressions into the logic.

5.1 Syntax of the formal language

I will not lay out the syntactic rules for $\mathcal{L}$; it should become sufficiently clear once we go through the semantics. Suffice it to say that it contains variables, individual constants, predicate constants, connectives, and special indexical constants such as **i** picking out the speaker. Each expression in our logic will be assigned a type, drawn from the set of types defined recursively in the style of Montague (1973).

1. e and t are types
2. If σ and τ are types, then $\langle \sigma, \tau \rangle$ is a type.
3. If τ is a type, then $\langle s, \tau \rangle$ is a type.

The language contains an infinite number of variables $v_{i,\tau}$ for each type τ and each natural number i; in addition, the variables x, y and z are of type e, the variable P is of type $\langle e, t \rangle$, and the variable p is of type $\langle s, t \rangle$.

5.2 Semantics of the formal language

For each type, there is a corresponding domain; D_e is the set of individuals, D_t is the set of truth values, and $D_{\langle \sigma,\tau \rangle}$ is the set of functions from D_σ to D_τ. For any type τ, $D_{\langle s,\tau \rangle}$ is the domain of functions from possible worlds to D_τ. I also assume that for every type τ, there is an 'undefined object' for every type $\#_\tau$, defined in the style of LaPierre (1992).

An outlook-based model is a tuple

$$M = \langle C, D_e, D_t, \Omega, \mathcal{W}, \propto, A, \mathcal{R}, I \rangle$$

where:

- C is a non-empty set, the set of contexts. Following Kaplan (1977), a context of utterance c is taken to be a tuple determining among other things the speaker (or author) of the utterance $sp(c)$ and a world $w(c)$. If $c \in C$ then $sp(c) \in D_e$ and $w(c) \in \mathcal{W}$.
- D_e is a set of individuals.

- D_t is a set of truth values: T, F, and $\#$.
- Ω is a set of outlooks.
- $\mathcal{W}$ is a set of worlds.
- $\propto$ is a one-to-one relation among mutually non-overlapping subsets of Ω and elements of $\mathcal{W}$.
- A is the set of agents, a subset of D.
- $\mathcal{R}$ is a set of accessibility relations R_a, one for each $a \in A$, each being a binary relation on Ω specifying the doxastic state for each agent at each outlook.
- I is a valuation function assigning to each non-logical constant in the language an intension, which is a function from outlooks to extensions of the appropriate type. For the extension of an expression α at outlook o we write $I_o(\alpha)$. If α is of type τ, then for any outlook o, $I_o(\alpha) \in D_\tau$.

If $O \propto w$ for some set of outlooks O and some world w, then O is called the *refinement class* for w and each of the outlooks $o \in O$ is a *refinement* of w.

Against the background of a model determining $\mathcal{W}$, Ω and a one-to-one relation $\propto$ between worlds and their refinement classes, we can make the following distinctions:

- **Proposition (revised)**
  A *proposition* is a (total) function from outlooks to truth values.
- **Objective proposition (revised)**
  A proposition p is *objective* if there is no $w \in \mathcal{W}$ such that there are refinements $o, o' \in \Omega$ of w such that $p(o) = \mathrm{T}$ and $p(o') = \mathrm{F}$.
- **Discretionary proposition (revised)**
  A proposition p is *discretionary* iff there is some $w \in \mathcal{W}$ such that there are refinements $o, o' \in \Omega$ of w such that $p(o) = \mathrm{T}$ and $p(o') = \mathrm{F}$.
- **Strongly discretionary proposition (revised)**
  A proposition p is *strongly discretionary* iff for all $w \in \mathcal{W}$, there are refinements $o, o' \in \Omega$ of w such that $p(o) = \mathrm{T}$ and $p(o') = \mathrm{F}$.

We have in addition the following relativized notions:

- **Information state**
  An *information state* is a set of outlooks.
- **C-restricted refinement class**
  Where C is an information state, the C-restricted refinement class of a world w, written $w \restriction C$, is the set of outlooks in C that are refinements of w.
- **Objective relative to an information state**
  A proposition p is *objective relative to an information state C* iff there is no C-restricted refinement class $w \restriction C$ such that $o, o' \in w \restriction C$ and $p(o) = \mathrm{T}$ and $p(o') = \mathrm{F}$.
- **Discretionary relative to an information state**
  A proposition p is *discretionary relative to an information state C* iff there is some C-restricted refinement class $w \restriction C$ such that $o, o' \in w \restriction C$ and $p(o) = \mathrm{T}$ and $p(o') = \mathrm{F}$.
- **Strongly discretionary relative to an information state**
  A proposition p is *strongly discretionary relative to an information state C* iff for all non-empty C-restricted refinement classes $w \restriction C$, there are $o, o' \in w \restriction C$ such that $p(o) = \mathrm{T}$ and $p(o') = \mathrm{F}$.

The last of these notions is used for subjective attitude verbs.

The ordinary denotation of an expression depends on:

- a model M
- a context of utterance c
- a context set C (a set of outlooks)
- a variable assignment g—a total function whose domain consists of the variables of the language such that if u is a variable of type τ then $g(u) \in D_\tau$
- and an outlook o

We write:

$$[\![\alpha]\!]^{M,c,C,g,o}$$

for 'the denotation of α with respect to M, c, C, g and o'.[20]

Non-logical constants (terms, predicates, relations) depend on the valuation function I provided by the model:

- If α is a non-logical constant, then $[\![\alpha]\!]^{M,c,C,g,o} = I_o(\alpha)$.

Variables depend on an assignment function g:

- If u is a variable, then $[\![u]\!]^{M,c,C,g,o} = g(u)$.

Indexical constants depend on the context of utterance. In particular, the special constant **i** is the one that is interpreted as the speaker of the utterance.

- $[\![\mathbf{i}]\!]^{M,c,C,g,o} = sp(c)$.

The semantics of a complex expression of the form $\alpha(\beta)$ is defined through the rule of application:

- If α is of type $\langle\sigma, \tau\rangle$ and β is of type σ, then

$$[\![\alpha(\beta)]\!]^{M,c,C,g,o} = [\![\alpha]\!]^{M,c,C,g,o}([\![\beta]\!]^{M,c,C,g,o}).$$

For example (supposing $I_o(\mathbf{a})$ is Anna):

- $[\![\mathbf{happy}(\mathbf{a})]\!]^{M,c,C,g,o} = I_o(\mathbf{happy})(I_o(\mathbf{a}))$
  $= 1$ iff Anna is happy in o
- $[\![\mathbf{happy}(\mathbf{i})]\!]^{M,c,C,g,o} = I_o(\mathbf{happy})(sp(c))$
  $= 1$ iff the speaker of context c is happy in o

Lambda-abstraction is defined as follows (see Dowty et al. 1981 for a pedagogical presentation):

- If u is a variable of type τ then $[\![\lambda u[\alpha]]\!]^{M,c,C,g,o} =$ the function f such that for all d: $f(d) = [\![\alpha]\!]^{M,c,C,g[x\to d],o}$

[20] In case the semantic value of an expression α is the same for all assignment functions, it has an assignment-independent denotation $[\![\alpha]\!]^{M,c,C,o}$. This can be further simplified by dropping M and C, allowing us to write simply $[\![\alpha]\!]^{c,o}$ or $[\![\alpha]\!]^{c;o}$ as I have done in the main text above.

Table 1 Interpretation of the connectives (Weak Kleene)

$\wedge$	T	F	#
T	T	F	#
F	F	F	#
#	#	#	#

$\vee$	T	F	#
T	T	T	#
F	T	F	#
#	#	#	#

$\neg$	
T	F
F	T
#	#

	∂
T	T
F	#
#	#

We also avail ourselves of a description operator:

- $[\![\iota u[\phi]]\!]^{M,c,C,g,o} = d$ if $\{x : [\![\phi]\!]^{M,c,g[u\to d],o} = \mathrm{T}\} = \{d\}$; $\#_e$ otherwise.

Equality, the connectives, and quantifiers over individuals are defined as follows.

- $[\![\alpha = \beta]\!]^{M,c,C,g,o} = \mathrm{T}$ if $[\![\alpha]\!]^{M,c,C,g,o} = [\![\beta]\!]^{M,c,C,g,o}$ and F otherwise.
- If ϕ and ψ are formulas, then $[\![\phi \wedge \psi]\!]^{M,c,g,o}$, and $[\![\phi \vee \psi]\!]^{M,c,C,g,o}$ are defined as in Table 1. These are the 'Weak Kleene' interpretations of the connectives, according to which # is interpreted as 'nonsense'.[21]
- If ϕ is a formula, then $[\![\neg\phi]\!]^{M,c,g,o}$ and are defined as in Table 1, where the rows indicate $[\![\phi]\!]^{M,c,g,o}$, and the columns, for the binary connectives, indicate $[\![\psi]\!]^{M,c,C,g,o}$. ($\partial[\phi]$ can be glossed as 'presupposing ϕ')
- If u is a variable of type τ and ϕ is a formula then:

$$[\![\forall u[\phi]]\!]^{M,c,C,g,o} = \begin{cases} \# & \text{if for all } d \in D_\tau,\ [\![\phi]\!]^{M,c,C,g[u\to d],o} = \# \\ \mathrm{F} & \text{if there is a } d \in D_\tau \text{ such that } [\![\phi]\!]^{M,c,C,g[u\to d],o} = \mathrm{F} \\ \mathrm{T} & \text{otherwise} \end{cases}$$

The modal operators, which will be used in the semantics of attitude verbs, are defined as follows[22]:

- If α is an expression of type e such that $[\![\alpha]\!]^{M,c,C,g,o} \in A$, and ϕ is an expression of type t, then:
  $[\![\Box_\alpha\phi]\!]^{M,c,C,g,o} = \mathrm{T}$ if for all o' such that $R_{[\![\alpha]\!]^{M,c,g,o}}(o, o')$: $[\![\phi]\!]^{M,c,C,g,o'} = \mathrm{T}$, and F otherwise.

$\Diamond_a$ is the dual of $\Box_a$ for all appropriate a.

The *proposition expressed by* ϕ (or *intension* of ϕ) relative to M, c, C, and g, written $[\![\phi]\!]^{M,c,C,g}_{\mathfrak{C}}$ is that function from outlooks to truth values f such that for all $o \in \Omega$, $f(o) = [\![\phi]\!]^{M,c,C,g,o}$. Relative to M, c, C, and g, what *tycka* requires of its complement ϕ is that the proposition $[\![\phi]\!]^{M,c,C,g}_{\mathfrak{C}}$ is strongly discretionary relative to C. The formal language contains a constant encapsulating this notion:

(47) $[\![\textbf{discretionary}(\phi)]\!]^{M,c,C,g,o} = \mathrm{T}$ iff $[\![\phi]\!]^{M,c,C,g}_{\mathfrak{C}}$ is strongly discretionary relative to C

[21] With the help of the other unary operators in Table 1, the Strong Kleene connectives can be reconstructed.

[22] Note that combining type theory with modal logic in the way that Montague does in IL, and as we have done here, has been argued to be problematic by Muskens (2006). Muskens offers an alternative using explicit quantification over worlds as in Gallin's (1975) Ty2. We use Montague's style here for the purposes of comparison with other theories in the literature on predicates of personal taste.

The intension of an expression α is denoted in the object language using $\hat{}\alpha$. The $\check{}$ operator goes in the other direction:

- $[\![\hat{}\alpha]\!]^{M,c,C,g,o}$ denotes $[\![\alpha]\!]^{M,c,C,g}_{\phi}$.
- $[\![\check{}\alpha]\!]^{M,c,C,g,o}$ is defined if α is of type $\langle s, \tau\rangle$ for some τ; in that case it denotes: $[\![\check{}\alpha]\!]^{M,c,C,g,o}(o)$

In general ϕ is equivalent to $\check{}\hat{}\phi$; we make use of this equivalence to simplify some representations in the examples below.

5.3 Translations

We now translate natural language expressions into expressions of this logic. We use a grammar to define a set of well-formed trees, and then for each tree χ we define a set of translations χ' by induction on the translation relation $\rightsquigarrow$. Here are some lexical entries.

1. *the* $\rightsquigarrow \lambda P \iota x[P(x)]$
2. *a* $\rightsquigarrow \lambda P[P]$
3. *Mary* $\rightsquigarrow$ **m**
4. *John* $\rightsquigarrow$ **j**
5. *I*/*me* $\rightsquigarrow$ **i**
6. *chili* $\rightsquigarrow \lambda x[\textbf{chili}(x)]$
7. *doctor* $\rightsquigarrow \lambda x[\textbf{doctor}(x)]$
8. *tasty* $\rightsquigarrow \lambda x[\textbf{tasty}(x)]$
9. *is*/*am* $\rightsquigarrow \lambda P[P]$
10. *thinks* $\rightsquigarrow \lambda p \lambda x[\Box_x[\check{}p]]$
11. *tycker* $\rightsquigarrow \lambda p \lambda x[\partial(\textbf{discretionary}(\check{}p)) \wedge \Box_x[\check{}p]]$

The last two entries involve the same use of types and intensionality that Montague (1973) uses in his treatment of *necessarily*.

Complement clauses must then have denotations of type $\langle s, t\rangle$. We thus introduce the following special composition rule for embedded clause:

- $[_{\text{CP}}\ \phi] \rightsquigarrow \hat{}\phi'$
  where $\phi \rightsquigarrow \phi'$.

Note that $\hat{}$ is not a function, so this is not a special case of Functional Application.

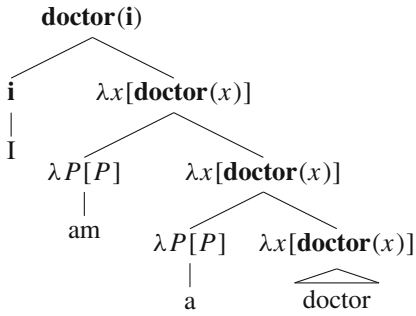
Otherwise, to put the meanings of natural language expressions together, we will use a set of composition rules, including:

(48) **Functional Application** (FA)
If $\alpha \rightsquigarrow \alpha'_{\langle\sigma,\tau\rangle}$ and $\beta \rightsquigarrow \beta'_{\sigma}$, and γ is an expression consisting of α and β, then:

$$\gamma \rightsquigarrow \alpha'(\beta')$$

For example, *I am a doctor* has the compositional analysis in (49a), and the truth conditions in (49b). Notice that its truth conditions depend on the context of utterance.

(49) a.

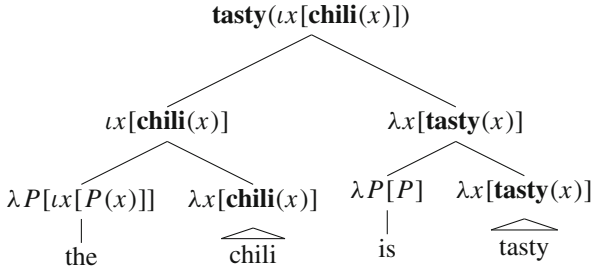


b. $[\![\textbf{doctor}(\textbf{i})]\!]^{M,c,C,g,o}$ = T if $I_o(\textbf{doctor})(sp(c))$ = T; else F.

Spoken by two different individuals, *I am a doctor* will have different contents. This correctly predicts that if someone asserts, *I am a doctor*, and you are not a doctor, it is not appropriate to respond, *No, I am not a doctor!*

The compositional analysis of *The chili is tasty* is given in (50a), and the truth conditions are given in (50b).

(50) a.

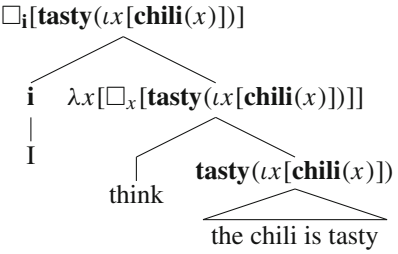


b. $[\![\textbf{tasty}(\iota x[\textbf{chili}(x)])]\!]^{M,c,C,g,o}$ = # unless there is a unique chili in o. If there is, then, letting s refer to the chili, the value is T if $I_o(\textbf{tasty})(s)$ = T; else F.

So the content of *The chili is tasty* does not depend on the speaker. This means that it is potentially the subject of genuine disagreement.

In contrast, the content of *I think the chili is tasty* does depend on the speaker:[23]

(51) a.



[23] The CP containing *the chili is tasty* translates as ^**tasty**(ιx[**chili**(x)]); the intension operator ^ is then 'cancelled out' by the extension operator ˇ introduced in the lexical entry for the attitude verb. The simplified expressions are shown in the tree.

b. $[\![\Box_{\mathbf{i}}[\mathbf{tasty}(\iota x[\mathbf{chili}(x)])]]\!]^{M,c,C,g,o'} = \mathrm{T}$ if for all o' such that $R_{sp(c)}(o, o')$: $[\![\mathbf{tasty}(\iota x[\mathbf{chili}(x)])]\!]^{M,c,C,g,o'} = \mathrm{T}$; else F.

So if someone says *I think the chili is tasty*, it is not predicted to be appropriate to respond, *No, I don't think the chili is tasty*, and this prediction is correct.

The corresponding sentence in Swedish with *tycka* would translate as:

(52) *Jag tycker att chilin är god* $\rightsquigarrow$
$\partial[\mathbf{discretionary}(\mathbf{tasty}(\iota x[\mathbf{chili}(x)]))] \wedge \Box_{\mathbf{i}}[\mathbf{tasty}(\iota x[\mathbf{chili}(x)])]]$

This is defined with respect to M, c, C, g, and o iff $[\![\mathbf{tasty}(\iota x[\mathbf{chili}(x)])]\!]^{M,c,C,g}_{\mathcal{C}}$ is discretionary, and true if the speaker of c accepts that proposition.

It should be clear that we have not achieved any major technical feats here; structurally, this looks very much like the standard picture. No extra judge parameters, no contexts of assessment. Except for the structure of the models, this is just plain old Kaplanian semantics with a little bit of epistemic logic thrown in, cast in a type-theoretic framework where we translate natural language expressions to logical expressions.

6 Summary

This paper has developed and defended a simple relativist view on statements regarding taste and other discretionary statements along the lines advocated by Kölbel (2002, 2003). Outlook-based semantics replaces possible worlds with outlooks, where outlooks are refinements of worlds. From the user's perspective, as it were, the framework is identical to the standard Kaplanian framework (modulo the addition of a context set parameter), making it easy to work with, extend, and compare. Furthermore, the framework genuinely captures faultless disagreement, gives a satisfactory account of subjective attitude verbs while allowing for lack of opinionatedness, and derives the core pragmatic behavior of discretionary talk without stipulation.

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References

Barker, C. (2002). The dynamics of vagueness. *Linguistics and Philosophy*, *25*, 1–36.
Barker, C. (2013). Negotating taste. Inquiry: An Interdisciplinary. *Journal of Philosophy*, *56*(203), 240–257.
Beaver, D., & Krahmer, E. (2001). A partial account of presupposition projection. *Journal of Logic, Language and Information*, *10*, 147–182.

Björnsson, G., & Alexander, A. (2010). The pragmatics of insensitive assessments: Understanding the relativity of assessments of judgments of personal taste, epistemic modals, and more. In B. H. Partee, M. Glanzberg, & J. Skilters (Eds.), *Formal semantics and pragmatics: Discourse, context and models* (pp. 1–45). Manhattan, KS: New Prairie Press.
Blackburn, S. (1984). *Spreding the word*. Oxford: Clarendon Press.
Blackburn, S. (1998). *Ruling passions*. Oxford: Clarendon Press.
Blomqvist, F. (2014). *Outlook-based semantics: A semantic theory for predicates of personal taste*. Undergraduate thesis, University of Gothenburg.
Bouchard, D.-É. (2012a). *Long-distance degree quantification and the grammar of subjectivity*. McGill University dissertation.
Bouchard, D.-É. (2012b). The partial factivity of opinion verbs. In *Proceedings of Sinn und Bedeutung 17*.
Brogaard, B. (2008). Moral contextualism and moral realism. *The Philosophical Quarterly*, *58*(232), 386–409.
Büring, D. (2003). On d-trees, beans, and b-accents. *Linguistics and Philosophy*, *26*, 511–545.
Bylinina, L. (in press). Judge-dependence in degree constructions. *Journal of Semantics*.
Cappelen, H., & Hawthorne, J. (2009). *Relativism and monadic truth*. Oxford: Oxford University Press.
Clark, H. (1992). *Arenas of language use*. Chicago: University of Chicago Press.
Clark, H., & Schaefer, E. (1989). Contributing to discourse. *Cognitive Science*, *13*, 259–94.
Dowty, D., Wall, R. E., & Peters, S. (1981). *Introduction to Montague semantics*. Dordrecht: Kluwer.
Egan, A. (2007). Epistemic modals, relativism, and assertion. *Philosophical Studies*, *133*(1), 1–22.
Egan, A. (2010). Disputing about taste. In R. Feldman & T. A. Warfield (Eds.), *Disagreement* (pp. 247–86). Oxford: Oxford University Press.
Farkas, D., & Bruce, K. (2010). On reacting to assertions and polar questions. *Journal of Semantics*, *27*, 81–118.
Fleisher, N. (2013). The dynamics of subjectivity. In *Semantics and Linguistic Theory (SALT)* (Vol. 23, pp. 276–294). Ithaca, NY: CLC Publications.
Gallin, D. (1975). *Intensional and higher order modal logic*. Amsterdam: North Holland Press.
Gibbard, A. (1990). *Wise choices, apt feelings*. Oxford: Clarendon Press.
Gibbard, A. (2003). *Thinking how to live*. Cambridge: Harvard University Press.
Ginzburg, J. (1996). Dynamics and the semantics of dialogue. In J. Seligman & D. Westerståhl (Eds.), *Logic, language and computation* (pp. 221–237). Stanford: CSLI Publications.
Ginzburg, J. (2012). *The interactive stance*. Oxford: Oxford University Press.
Glanzberg, M. (2007). Context, content and relativism. *Philosophical Studies*, *136*, 1–29.
Groenendijk, J., & Roelofsen, F. (2009). *Inquisitive semantics and pragmatics*. Presented at the Workshop on Language, Communication, and Rational Agency at Stanford, May 2009.
Groenendijk, J., & Stokhof, M. (1984). *Studies on the semantics of questions and the pragmatics of answers*. University of Amsterdam dissertation.
Hirvonen, S. (2014). *Predicates of personal taste and perspective dependence*. University College London dissertation.
Huvenes, T. T. (2012). Varieties of disagreement and predicates of taste. *Australasian Journal of Philosophy*, *90*, 167–181.
Kaplan, D. (1977). Demonstratives: An essay on the semantics, logic, metaphysics, and epistemology of demonstratives and other indexicals. In J. Almog, J. Perry, & H. Wettstein (Eds.), *Themes from Kaplan* (pp. 267–298). Oxford: Oxford University Press.
Kaplan, D. (1978). On the logic of demonstratives. *Journal of Philosophical Logic*, *8*, 81–98.
Kaplan, D. (1989). Afterthoughts. In J. Almog, J. Perry, & H. Wettstein (Eds.), *Themes from Kaplan*. Oxford: Oxford University Press.
Kennedy, C., & Willer, M. (2016). Subjective attitudes and counterstance contingency. *Proceedings of SALT*, *26*, 913–933.
Kölbel, M. (2002). *Truth without objectivity*. London: Routledge.
Kölbel, M. (2003). Faultless disagreement. *Proceedings of the Aristotelian Society*, *104*, 53–73.
LaPierre, S. (1992). A functional partial semantics for intensional logic. *Notre Dame Journal of Formal Logic*, *33*(4), 517–541.
Lasersohn, P. (2005). Context dependence, disagreement, and predicates of personal taste. *Linguistics and Philosophy*, *28*, 643–86.
Lasersohn, P. (2009). Relative truth, speaker commitment, and control of implicit arguments. *Synthese, 166*, 359–374.

Lewis, D. (1979). Attitudes de dicto and de se. *Philosophical Review*, *88*, 513–43.
List, C. (2013). Free will, determinism, and the possibility of doing otherwise. *Noûs*, *48*(1), 156–178.
List, C., & Pivato, M. (to appear). Emergent chance. *The Philosophical Review*.
MacFarlane, J. (2003). Future contingents and relative truth. *The Philosophical Quarterly*, *53*(212), 321–336.
MacFarlane, J. (2007). Relativism and disagreement. *Philosophical Studies*, *132*, 17–32.
MacFarlane, J. (2011). Epistemic modals are assessment-sensitive. In A. Egan & B. Weatherson (Eds.), *Epistemic modality* (pp. 144–78). Oxford: Oxford University Press.
Moltmann, F. (2010). Relative truth and the first person. *Philosophical Studies*, *150*, 187–220.
Montague, R. (1973). The proper treatment of quantification in ordinary English. In J. Hintikka, J. Moravcsik & P. Suppes (Eds.), *Approaches to natural language: Proceedings of the 1970 Stanford workshop on grammar and semantics* (Vol. 49 Synthese Library, pp. 221–242). Dordrecht: Springer. https://doi.org/10.1007/978-94-010-2506-510.
Moruzzi, S. (2008). Assertion, belief and disagreement: A problem for truth-relativism. In M. García-Carpintero & M. Kölbel (Eds.), *Relative truth* (pp. 207–224). Oxford: Oxford University Press.
Muskens, R. (2006). Higher order modal logic. In J. van Benthem & F. Volter (Eds.), *Handbook of modal logic* (pp. 621–653). Amsterdam: Elsevier.
Ninan, D. (2010). De se attitudes: Ascription and communication. *Philosophy Compass*, *5*(7), 551–567.
Pearson, H. (2013). A judge-free semantics for predicates of personal taste. *Journal of Semantics*, *30*(1), 103–154.
Rabinowicz, W. (2008). Value relations. *Theoria*, *74*, 18–49.
Richard, M. (2004). Contextualism and relativism. *Philosophical Studies*, *119*(1), 215–42.
Richard, M. (2008). *When truth gives out*. Oxford: Oxford University Press.
Roberts, C. (1996). Information structure in discourse: Towards an integrated formal theory of pragmatics. In J.-H. Yoon & A. Kathol (Eds.), *OSU Working Papers in Linguistics 49: Papers in semantics* (pp. 91–136). Columbus: The Ohio State University.
Rosenkranz, S. (2008). Frege, relativism and faultless disagreement. In M. García-Carpintero & M. Kölbel (Eds.), *Relative truth* (pp. 225–237). Oxford: Oxford University Press.
Sæbø, K. J. (2009). Judgment ascriptions. *Linguistics and Philosophy*, *32*, 327–352.
Schaffer, J. (2011). Perspective in taste predicates and epistemic modals. In A. Egan & B. Weatherson (Eds.), *Epistemic modals* (pp. 179–226). Oxford: Oxford University Press.
Stalnaker, R. (1978). Assertion. In *Syntax and semantics* (Vol. 9). Academic Press.
Stalnaker, R. (2014). *Context*. Oxford: Oxford University Press.
Stephenson, T. (2007a). Judge dependence, epistemic modals, and predicates of personal taste. *Linguistics and Philosophy*, *30*, 487–525.
Stephenson, T. (2007b). *Towards a theory of subjective meaning*. MIT dissertation.
Stojanovic, I. (2007). Talking about taste: Disagreement, implicit arguments, and relative truth. *Linguistics and Philosophy*, *30*, 691–706.
Yablo, S. (2016). *Aboutness*. Princeton: Princeton University Press.