

Judgment Ascriptions

Abstract. Some propositional attitude verbs require that the complement contain some “subjective predicate”. In terms of the theory proposed by Lasersohn (2005), these verbs would seem to identify the “judge” of the embedded proposition with the matrix subject, and there have been suggestions in this direction (Lasersohn 2009, Nouwen 2007, Stephenson 2007). I show that it is possible to analyze these verbs as setting the judge and doing nothing more; then according to whether a judge index or a judge argument is assumed, unless the complement contains a subjective predicate, the whole matrix is redundant or there is a type conflict. I further show that certain clear facts argue for assuming a judge argument which can be filled by a contextually salient entity – or by the subject of a subjective attitude verb.

Keywords: judgment, propositional attitudes, subjective predicates, personal taste

1. Introduction: Subjective Attitudes

Across languages, a family of propositional attitude verbs appear to require the argument proposition to be open to subjective assessment, something which, in turn, appears to depend on the presence of some subjective predicate in the argument clause: A predicate of “personal taste”, as in the Swedish sentence (1), or a dimensional adjective in the positive, as in the German sentence (2), or a modal used in a deontic or bouletic sense, as in the French sentence (3).

- (1) Några **tycker** att kärnkraftverk är vackrare än
some think that nuclearworks are beautifuler than
vindmöllor.
windmills
'Some find nuclear power plants more beautiful than windmills.'
- (2) Die Preise sind zwar normal für Eau de Parfums, aber ich
the prices are tobesure normal for eau de perfumes but I
persönlich **finde** trotzdem, dass sie hoch sind.
personally find nonetheless that they high are
'Prices may be normal for perfumes, but I still find them high.'
- (3) 90% **trouvent** que chacun devrait comprendre au moins
90% find that everyone should understand at least
une langue étrangère en plus de sa langue maternelle.
one language foreign in more of his language maternal
'90% feel that anybody should know a foreign language.'



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These verbs are, if not quite synonymous, very similar in meaning. English paraphrases might use the verb *think*, but this verb has beside the interpretation at issue here an “objective” reading close to *believe*. Beside such finite-clause embedding verbs, there are variants and other verbs embedding nonfinite clauses, like English *find* and *consider*, and there are other, less precise verbs, like English *feel* and German *meinen*. Henceforth, I will refer to the clear cases as *subjective attitude verbs*.

Unless the clause embedded by a subjective attitude verb contains a subjective predicate, the sentence is infelicitous, as are, respectively, the Norwegian, German, French, and English sentences (4)–(7).

- (4) #Mange forskere **synes** at dinosaurene ble utryddet
 many researchers seem that dinosaurs were extinguished
 av et voldsomt kometnedslag for 65 millioner år siden.
 by a violent cometimpact for 65 million years since
 (Intended: ‘Many scientists SUBJECTIVE ATTITUDE VERB
 that the dinosaurs were extinguished by a major comet impact
 65 million years ago.’)
- (5) #Die meisten Menschen **finden**, dass es einen Osterhasen
 the most men find that there a easterhare
 gibt, der am Ostersonntag die Eier versteckt.
 is who on Eastersunday the eggs hides
 (Intended: ‘Most people SUBJECTIVE ATTITUDE VERB that there
 is an Easter Hare concealing the eggs on Easter Sunday.’)
- (6) #Les Catholiques romains **trouvent** que les âmes de ceux
 the Catholics Roman find that the souls of those
 qui meurent sans avoir entièrement satisfait à la justice
 who die without have entirely satisfied to the justice
 divine, vont après la mort dans le purgatoire.
 divine go after the death into the purgatory
 (Intended: ‘Roman Catholics SUBJECTIVE ATTITUDE VERB that
 the souls of those who have not satisfied Divine Justice in full
 go to the Purgatory after death.’)
- (7) #Homer finds Bart gay.

It is not obvious what makes these sentences semantically deviant. To be sure, there is an intuition that it does not make sense to entertain a subjective attitude to something which is either a fact or not a fact, regardless of the subject of the attitude; but this is of course still far from an explicit and explanatory analysis.

It appears, however, as if subjective attitude verbs largely depend on such predicates that have been alleged to depend on a judge parameter (Lasersohn 2005), in particular, so-called predicates of personal taste, like *fun* or *tasty*, and it is tempting to try to exploit that correlation. I will show that the infelicity of cases like (4) or (5) is indeed predictable if these attitudes are taken to merely fix such a parameter, predictable in different ways depending on how the notion of a judge is construed, as a semantic index or as an implicit argument of the relevant predicate. Certain facts about the relationship between subjective attitude verbs and judge-dependent predicates even provide a means to choose among the different conceptions of the judge, militating for a notion of judges as implicit arguments, saturated by a contextually salient individual or intrasententially, through, e.g., the subject of a subjective attitude.

The observed distinction between subjective and objective attitudes is by no means a coincidence of Germanic and Romance languages. In Mandarin Chinese, the verb *jué dé* (覺得) fills roughly the same semantic role as, say, the verb *tycka* in Swedish.¹ And in Norwegian Sign Language, the sign corresponding to *synes* is distinct from that corresponding to *tro* or *meine* ('believe', 'think').²

The rest of the paper is structured as follows. In Section 2, I briefly set out the different ways in which the judge-sensitivity of predicates of personal taste can be encoded in the semantics. I also introduce the concept of judge shift and review the suggestions that have been made in this area. In Section 3, I develop two proposals of my own for the semantic analysis of subjective attitude verbs and show that they both predict a dependence on judge-sensitive predicates.

In Section 4, I present facts that favor one proposal over the other, and generally one notion of judge dependence over the others. Section 5 is concerned with tense and time in subjective attitude contexts and with how negation can interact with subjective attitude verbs. Section 6 discusses how a judge argument should be linked up with relevant lexemes that are not predicates of personal taste, suggesting that the right locus is (for relative adjectives) the covert positive formative and (for modals) normative ordering sources. Section 7 brings conclusions.

2. Theories of Judgment

Recent work by Lasersohn (2005, 2009) and others has revived the idea that semantic values, in particular those of predicates of personal taste,

¹ I am much indebted to Ivo Spira for bringing this fact to my attention.

² For one thing, its location is at the chest instead of at the forehead. Thanks to Arnfinn Muruvik Vonen for informing me of this.

may depend on a **judge**. Such a dependence seems natural, but on the other hand, any way of encoding it seems to raise theoretical problems, and opinions differ over how to do it so as to minimize those problems and do justice to the facts. In this section, I review the main positions and the analyses that have been proposed for constructions that appear to serve the purpose of shifting a parameter of judgment.

2.1. NOTIONS OF JUDGES

According to Lasersohn (2005), predicates of personal taste depend on (a time t , a world w , and) a judge u , an index of evaluation on par with (the time as it was treated, e.g., by Montague (1973) and) the world. This is a version of **Semantic Relativism**. The intension of a word like *beautiful* is (what amounts to) a nonconstant function from judges to more traditional intensions.

Contra Lasersohn, Glanzberg (2007) argues that the judge should be represented as a contextual parameter, an experiencer class E to be set by the context. This is a version of **Contextualism**. The character of a word like *beautiful* is a function from (i.a.) classes of experiencers to (traditional) intensions.

Stephenson (2007) unites Relativism and Contextualism, ascribing to personal taste predicates and epistemic modals an argument place occupied either by PRO_J , denoting the ‘actual’ judge, i.e. Lasersohn’s index, or by *pro*, referring to a contextually salient individual. Thus the extension of a word like *beautiful* is a nonconstant function from judges to traditional extensions, and if the judge is what PRO_J denotes, it is a semantic index, while if it is what *pro* refers to, it is a contextually given entity.

Stojanovic (2007), on the other hand, argues that it does not matter for semantics whether it is a semantic or a contextual index/parameter, since semantically, contextualism can do everything that relativism can. She presents a contextualist semantics without a judge index but with a distinguished variable x_T occupying the implicit judge argument place associated with personal taste predicates.

It is possible to sort theories along two axes: whether the relevant predicates have a judge argument, and whether there is a judge index; cf. Table I.

All scholars emphasize that the judge, whether it is located in the context of utterance or in the circumstances of evaluation, is not just any (salient) individual. Thus both the first person (‘I’) and a plural referent (‘people in general’) seem to represent unmarked cases; see, e.g., Moltmann (2009) for a discussion of these issues of perspective.

Table I. Theories of judgment

	+ judge index	÷ judge index
÷ judge argument	Relativism (Lasersohn)	Contextualism (Glanzberg)
+ judge argument	Corelativism (Stephenson)	Cotextualism (Stojanovic)

“Just as there are restrictions on what, in any given context, can be referred to with ‘this’, there are restrictions on the range of individuals plausibly assignable to x_T .” (Stojanovic 2007: 701)

Although controversy persists over the treatment of personal taste predicates and the relation between Relativism and Contextualism (cf., e.g., the relevant papers in Kölbel and García-Carpintero (eds.) 2008 and Brogaard (ed.) 2009), my modest aim in this paper is to inform the debate indirectly, by assessing which theory is best suited to account for the facts about subjective attitudes. I will argue, in Section 4, that a cotextualist theory assuming a judge argument and no judge index – that is, a theory corresponding to the bottom right case in Table 1 – is the most appropriate.

2.2. SHIFTING JUDGES

Particularly relevant to the analysis of subjective attitudes are analyses which have been proposed for certain prepositions and attitude verbs in work on judge-sensitive predicates, in particular, the preposition *for* and the verb *think*.

2.2.1. Prepositions and Datives

According to Lasersohn (2005), *for* can serve to fix the judge index to the individual denoted by the (type e) complement.³ He gives the following definition (here rendered in a slightly simplified notation):

Prepositional Judge Shift according to Lasersohn (2005)

$$\llbracket \alpha \text{ for } \beta \rrbracket_{j,t,v} = \llbracket \alpha \rrbracket_{b,t,v} \text{ where } b = \llbracket \beta \rrbracket_{j,t,v}$$

³ A type $((et)t)$ complement must be taken to undergo QR leaving a type e trace.

That is, after the *for* phrase has applied, the formerly judge-sensitive property is that constant function assigning to any judge the property as applied to the denotation of the preposition’s complement.

Stephenson (2007) shares the basic assumption that a preposition like *for* can serve to shift the judge, but since in her theory, a personal taste predicate denotes a function from judge arguments, the preposition can simply denote the identity function on individuals:

Prepositional Judge Shift according to Stephenson (2007)

$$\llbracket \textit{for} \rrbracket_{v,t,j} = \lambda y_e y$$

In fact, Stephenson describes the relevant PP not as an adjunct but as a complement of the predicate of personal taste. The assumption that such a predicate subcategorizes for a PP with a certain preposition is in tune with the fact that different predicates select different prepositions, some select *for*, some *to*. Besides, it helps explain why the predicate is not realized as a transitive verb instead of as an adjective and why it does not apply directly to a bare (accusative or nominative) DP – from a purely semantic point of view, it looks for two individuals, one after the other (a similar issue arises in connection with attitudes below).

Thus in Stephenson’s framework, there are three ways to saturate the judge argument brought along by a predicate of personal taste: through a PP complement, through **pro**, referring to a contextually salient individual, or through PRO_J , denoting the semantic judge index (the ‘actual’ judge). Although Stephenson is not quite explicit about it, it is reasonable to suppose that these three fillers of the judge role occupy the same position and that exactly one of them merges with the predicate before the merge with the predicate’s ‘external’ argument. The situation is similar in Stojanovic’s framework, only here, because there is no judge index, there are two alternative fillers of the judge role, and the judge is not the first but the second argument of the predicate:

“The way in which contextualist semantics would handle ... ‘for Tarek’ is simply by making explicit the second argument of ‘tasty’, which, when *implicit*, is occupied by the variable x_T .”
(Stojanovic 2007: 701)

Note that i.a. in German, the dative case can fill the same function as, according to Stephenson, an English *for* or *to* complement (the Latin term for this use of the dative is *dativus iudicantis*); thus in (8) and (9), the English PP corresponds to a German dative DP:

- (8) a. These issues are embarrassing for economists.

- (9) b. Diese Fragen sind den Ökonomen peinlich.
 these issues are the_{DAT} economists embarrassing
- a. Their origin remains mysterious to astronomers.
 b. Ihre Herkunft bleibt den Astronomen rätselhaft.
 their origin remains the_{DAT} astronomers enigmatic

When a dativus iudicantis DP or a suitable PP has combined with a predicate of personal taste (whether as an adjunct, Lasersohn-style, or an argument, Stephenson-style), it is not judge-variant anymore. This means that if a subjective attitude verb needs a judge-variant predication in its complement, a personal taste predicate modified or saturated by a *iudicantis* phrase cannot meet that need, so a sentence with a subjective attitude verb and a personal taste predicate with a *iudicantis* phrase will be infelicitous – and this is borne out:

- (10) Jeg synes spillet er morsomt (# for alle). (Norwegian)
 I seem game-the is fun (# for all)

This suggests the following generalization:

(11) **Generalization**

A subjective attitude verb is only felicitous with a complement clause whose character, intension or extension is a nonconstant function from judges.

Indeed, subjective attitudes would seem to be designed to saturate such a function in a similar way as a *iudicantis* DP / PP adjunct / argument.

2.2.2. Propositional Attitude Verbs

Some scholars have suggested that verbs like *consider*, *find*, or *think* can fix the judge of their object to their subject. In the formulation of Nouwen (2007: 5), “such an approach would have to say that”, i.a.,

x *thinks*₁ y *is tasty* is true in world w with respect to judge j iff,
 in x 's think-worlds, y *is tasty* is true with respect to judge x

Stephenson's (2007) proposal is (in a simplified notation):

Attitudinal judge shift according to Stephenson (2007)

$\llbracket \textit{think} \rrbracket_{v,t,j} = \lambda\phi_{(s(i(et)))} \lambda z_e \forall \langle w, t', x \rangle \in \text{Dox}_{v,t,z} : \phi_{w,t',x} = 1$

This meaning for *think* ... has the effect that a sentence of the form “ x thinks that S” is equivalent to “ x thinks that S is true as judged by x ”. In many cases this will be equivalent to “S is true as judged by x ” ... (Stephenson 2007: 501)

Lasersohn's (2009) suggestions concerning *consider* are similar.

Note that from a purely type-theoretic point of view, the attitude verb as defined here needs what is indistinguishable from a property, and one may well ask what prevents it from taking a (judge-invariant) predicate like *round* or *flat* as its first argument. There seem to be two possible answers, one semantic and one syntactic. Semantically, one could consider introducing a sorted domain of individuals in the form of two coextensional but distinctly labelled sets, one corresponding to the ordinary type e and the other reserved for a 'judge' type, say, a (for 'assessors'); predicates of personal taste would be of type $(a(et))$ and subjective attitude verbs would take arguments of type $(s(i(at)))$. Though this option might be feasible, it is theoretically problematic. The more realistic (though somewhat superficial) syntactic option is to say that predicates like *flat* cannot constitute what the attitude verbs subcategorize for.

The common denominator of these analyses is this: The subjective attitude verb is reduced to the corresponding objective attitude verb modulo the judge shift, which transforms ϕ to, effectively, that constant function from judges that assigns to any j $\phi(x)$ for x the subject. (12a) (on one reading) is predicted to mean more or less the same as (12b):

- (12) a. She thinks the game is fun.
b. She thinks the game is fun for her.

If one were to treat unambiguous subjective attitude verbs like *find* in the same way as Stephenson (2007) treats *think*, there would not be a very strong basis for predicting the infelicity of (4)–(7); (7) (= (13a)) would be predicted to mean roughly the same as (13b):

- (13) a. #Homer finds Bart gay.
b. Homer believes Bart is gay.

True, a part of what the attitude verb does is vacuous on Stephenson's analysis; because *gay* is judge-invariant, the judge shift from j to x is ineffective. Still, the other half of what the verb does is meaningful on this analysis: the doxastic part.

Actually, while Stephenson does not treat *find* in her paper (2007), in her dissertation (2007a) she does. Here (pp. 59ff.) she suggests that this verb differs from *think* in the extra requirement that the subject have direct experience of the argument proposition.

Judge shift according to Stephenson (2007a): *find*

$\llbracket find \rrbracket_{v,t,j} = \lambda\phi_{(s(i(et)))} \lambda z_e \forall \langle w, t', x \rangle \in \text{Dox}_{v,t,z} : \phi_{w,t',x} = 1$
and this is caused by z having a direct experience of ϕ in v

On this analysis, (13a) would presumably be ruled out on the grounds that Homer cannot have direct evidence of Bart’s sexual orientation. However, by the same token, (13c) should be good, as Homer can have the most direct evidence possible of his own sexual orientation.⁴

(13) c. ?Homer finds himself gay.

While it does seem marginally possible to make sense of this sentence, it seems to require a special interpretation of *find*, as an episodic verb, similar in meaning, *mutatis mutandis*, to a verb like *realize* or *discover*; note that a sentence like (13d) displays an ambiguity along this axis: alongside the interpretation where *great* is a predicate of personal taste and *find* expresses a subjective attitude, there is the interpretation on which *great* roughly means *famous* and *find* means more or less what it must mean for (13c) to be at all acceptable.

(13) d. Homer found himself great.

Indeed, the equivalent of (13c) in, say, Norwegian oder Swedish – with *synes* or *tycka* and a finite complement clause – is unconditionally unacceptable.

Thus the answers offered by Lasersohn (2009), Stephenson (2007), or even Stephenson (2007a) to the question what is wrong with sentences like (4)–(7) are all a bit unsatisfactory, a bit weak. But the part of them that unifies the judge of the proposition with the attitude holder can, as we will see presently, be strengthened.

3. Radical Judge Shift

If perspective is shifted from *think* to *find*, or from English to languages displaying an unambiguous subjective attitude verb operating on finite complement clauses, the picture changes: it no longer seems necessary to assume a doxastic element in the meaning of the verb, as its meaning appears to exhaust itself in the shifting of the judge. This section is concerned with exploring the option that the *sole* contribution of the attitude, verb plus subject, is to fix the judge.

I first discuss this option in the relativist framework of Lasersohn (2005) or Stephenson (2007), assuming a judge index, then I consider it in the “cotextualist” framework proposed by Stojanovic (2007), with a judge argument place but without a judge index.

⁴ I am grateful to a referee for this journal for pointing this out.

3.1. RELATIVISM AND REDUNDANCY

Suppose that the meaning of a clausal complement verb like *synes* in Norwegian, *tycka* in Swedish, *trouver* in French, or *jué dé* in Mandarin at a world v , a time t , and a judge j is a function from propositions ϕ – here, effectively, sets of world-time-judge triples – to functions from individuals x to truth values: 1 iff ϕ is true at the triple consisting of v , t , and, not the ‘actual’ judge j , but the shifted judge x :

$$(14) \quad \textit{synes}'_{v,t,j} = \lambda\phi_{(s(i(et)))} \lambda x \phi_{v,t,x}$$

Then what is wrong with (4) is that the whole attitude is redundant: It maps a judge-invariant function onto itself.

- (4) #Mange forskere **synes** at dinosaurene ble utryddet
 many researchers seem that dinosaurs were extinguished
 av et voldsomt kometnedslag for 65 millioner år siden.
 by a violent cometimpact for 65 million years since

To see this clearly, let us first define judge invariance:

- (15) A proposition ψ is judge invariant iff for all judges i, j and all worlds v and times t ,
- $$\psi_{v,t,i} = \psi_{v,t,j}$$

That the subjective attitude verb defined in (14) and any subject for it are redundant with respect to a certain proposition ψ means that

- (16) for all worlds v , times t , and judges j and for all y ,
- $$[\lambda\phi_{(s(i(et)))} \lambda x \phi_{v,t,x}](\psi)(y) = \psi_{v,t,j} \equiv \psi_{v,t,y} = \psi_{v,t,j}$$

Now if ψ is invariant wrt. the judge index in the sense defined in (15), as is, surely, the proposition that the dinosaurs were extinguished by a major comet impact 65 million years ago, any individual, in particular, j , can be substituted for y on the left hand side of the equation in (16), so that (16) is ultimately equivalent to the tautology (17):

- (17) for all worlds v , times t , and judges j (and for all y),
- $$\psi_{v,t,j} = \psi_{v,t,j}$$

Thus the analysis in (14), based in a semantic relativist framework with a judge index, gives a clear answer to the question what is wrong with sentences like (4)–(7): they reduce to the embedded sentences alone, so it is patently pointless to mention the matrix.

3.2. ACCESSING A JUDGE ARGUMENT

Suppose, alternatively, that – in a framework where the judge is an argument of judge-variant predicates, dispensing with the judge index – the meaning of a verb like *synes* at a time t and a world v is effectively a function from properties ϕ – functions from worlds and times to sets of judge individuals – to functions from individuals x to truth values: 1 iff ϕ at the pair consisting of v and t is true of the fixed judge x .⁵

$$(18) \quad \textit{synes}'_{v,t} = \lambda\phi_{(s(i(et)))} \lambda x \phi_{v,t}(x)$$

Actually, if we restrict attention to nonfinite-clause embedding verbs like English *find*, as in (19), we can dispense with the time index too, as it is natural to assume that the predicate has a state as its last argument and that tense enters into the derivation at a higher stage (see Section 5.1 on the treatment of tense and time in connection with finite-clause embedding attitude verbs).

$$(19) \quad \textit{Anne finds Mary beautiful.}$$

Thus the meaning of *find* can be defined as in (20) (where the state argument is for simplicity assigned the type i).

$$(20) \quad \textit{find}'_v = \lambda\phi_{(s(e(it)))} \lambda x \phi_v(x)$$

A judge-dependent predicate like *beautiful* could be defined as in (21), where the second argument, z , is the judge role argument:

$$(21) \quad \textit{beautiful}'_v = \lambda x_e \lambda z_e \lambda s \mathcal{B}_v(x)(z)(s)$$

And after (21) has combined with *mary'*_v and the result has combined with (20) and the result again has combined with *anne'*_v, we get:

$$(22) \quad \lambda s \mathcal{B}_v(m)(a)(s) \quad (\textit{anne find mary beautiful})$$

In this way, a function looking for a judge argument gets this argument saturated through a verb – *find* – looking for a function looking for a judge argument. If such a circuitous saturation does not take place, neither through an attitude verb nor through a case or preposition, the judge argument place is, it must be assumed, filled by a silent proform, *pro* (à la Stephenson) or the designated variable x_T (à la Stojanovic). As we will see in the next section, it is important that this proform does not enter that argument place as a syntactic argument but “a priori”.

⁵ Again, as in connection with Stephenson’s (2007) analysis of *think* (cf. 2.2.2), it is necessary to rely on syntax to prevent the attitude verb from combining with an ‘ordinary’ property – a function from worlds to sets of ‘ordinary’ individuals.

This analysis, encoded in (18)/(20), and its relativist counterpart, encoded in (14), give different answers to why subjective attitude verbs require judge-sensitive complements: if one assumes (14), (4)–(7) are interpretable, but the attitudes are superfluous; if one assumes (20), the composition terminates because of an irreconcilable type conflict.

Still, as yet there is no obvious reason to prefer contextualism over relativism. Stojanovic writes that while the choice cannot be decided on semantic grounds, considerations about pragmatics, syntax, or their interfaces with semantics may well push us the one way or the other. Some such evidence follows in Section 4. First, however, I will discuss the availability of “transparent” readings of judge-sensitive predicates in subjective attitude contexts and show that this phenomenon also fails to provide a reason for preferring one analysis over the other.

3.3. TRANSPARENT INTERPRETATIONS

As (23) shows, the content of a *that* clause can depend on two different judges. Obviously, the adjective form *ugliest* is here not evaluated with respect to the mother snipe, although the adjective form *beautiful* is:

(23) The mother snipe thinks the ugliest baby birds are beautiful.

So the judge index or argument is not shifted or saturated uniformly in the content of the embedded clause; the predicative adjective does get its judge shifted or saturated but the attributive adjective does not; it is interpreted, one might say, in a “de re” fashion.

On a relativist analysis where the judge is an index of evaluation, this could be handled in a number of different ways: by moving the subject DP *the ugliest baby birds* out of the scope of the attitude verb, by double indexing, insulating this DP from abstraction over the judge with, e.g., an actuality operator (for judges instead of worlds), or by “index binding” (see Heim (forthcoming: Section 2.2) for a survey of the various options as far as the analogous world index is concerned).

However, note that it is just as easy to handle the phenomenon in a cotextualist theory, where the situation would be described by saying that the judge argument of the attributive adjective is not saturated by the subject of *thinks*: *ugliest* will have its judge argument filled by the designated variable (here presumably referring to a generic judge, or bound by a universal quantifier, expressing a *tout court* judgment; cf. Stojanovic 2007: 701), while *beautiful* will have its judge argument open until filled by the mother snipe through the attitude verb.

4. Locality: contra Relativism

Not only do subjective attitude verbs require the complement clause to contain some subjective predicate, such as a predicate of personal taste; this predicate must evidently be what for want of a more precise term I provisionally call the ‘main predication’ in the clause. As it appears, it must be narrowly in focus, and it must not be embedded. It cannot even be conjoined with a judge-insensitive predicate.

These facts can be seen to tell in favor of a “cotextualist” analysis, where the judge figures as an extra argument of the relevant predicates. I will present three classes of facts: facts concerning coordination, facts concerning clause structure, and facts concerning focus structure.

4.1. COORDINATION

The sentences in (24a–c) show that a judge-sensitive predicate can be coordinated with another predicate, but if the clause is embedded under a subjective attitude, the other predicate must be judge-sensitive too:

- (24) a. You must be handsome and below 45.
 b. #She finds him handsome and below 45.
 c. She finds him handsome and pleasant to be with.

This tells in favor of the cotextualist analysis – (co)relativism offers no way to predict the b case, because the attitude will have free access to the judge index (unless this index is bound by something in between). More specifically, a coordination context, indeed, any context, is transparent for abstracting over and binding the judge as a semantic index, and because any denotation is in principle judge-variant, there cannot be a type conflict between the two properties *handsome* and *below 45*.

On an analysis with a judge argument, however, there will be a type conflict unless this argument is filled; for the intersective conjunction between *handsome* and *below 45* to succeed, the former must denote the relation $\lambda x \lambda s \mathcal{H}_v(x)(z)(s)$ for $z =$ the entity assigned to, say, the designated variable x_T . And then, the clause *him handsome and below 45* is judge-insensitive, denoting a set of states, which is right for *must* in (24a), but wrong for *find* in (24b). (24c), finally, is good because the conjunction can remain judge-sensitive, as required by *find*.

In fact, this reasoning entails that the designated variable does not saturate the judge argument from a syntactic node. Recall from Section 3.2 that – pro Stojanovic, contra Stephenson – the judge must be the second argument, after the subject: for, say, (24c) to be good, *him* must merge with *handsome and below 45* while the judge argument is still open. At the same time, x_T must not close the judge argument as a

syntactic constituent: for the conjunction to succeed in (24a) and (24b) (ultimately causing (24b) to be bad), this variable must fill the second argument prior to the merge with the subject of the embedded clause. This means that a predicate like *handsome* comes in two variants: one where the judge argument is lambda bound and another where it is – “a priori”, as it were – filled by the designated variable:⁶

- (25) a. $handsome'_v = \lambda x_e \lambda y_e \lambda s \mathcal{H}_v(x)(y)(s)$
 b. $handsome'_v = \lambda x_e \lambda s \mathcal{H}_v(x)(g(x_T))(s)$

Indeed, this seems to be what Stojanovic (2007: 701) has in mind when she writes (cf. also Section 2.2.1) that the way in which contextualist semantics would handle a PP like *for Isidora* is by making explicit the second argument of a predicate like *handsome*, which, when implicit, is occupied by the variable x_T .

4.2. CLAUSE STRUCTURE

Two more classes of facts can be adduced to strengthen the argument in favor of an analysis of judge-sensitive predicates in terms of a judge argument in the form of a designated free or a lambda bound variable. The first concerns contraposition of restrictor and scope in a universal quantificational structure; cf. the Norwegian sentence pair (26a–b):

- (26) a. Hun synes alle røykere er usympatiske.
 she seems all smokers are unpleasant
 ‘She finds all smokers unpleasant.’
 b. ??Hun synes alle som er sympatiske, er ikke røykere.
 she seems all that are pleasant are nonsmokers

Because the two embedded clauses in (26) (*all smokers are unpleasant* – *all pleasant people are nonsmokers*) mean more or less the same, the same should go for the two full clauses, but while the a sentence is fine, the b sentence is infelicitous. Now on a cotextualist analysis, assuming (20) and (25), in (26a), the judge argument of *usympatiske* ‘unpleasant’ is still missing when the embedded clause meets the subjective attitude verb – as required – iff the subject undergoes Quantifier Raising (QR). In (26b), however, if the subject DP is QRed, *usympatiske* ‘unpleasant’ is outside the scope of the attitude verb, and even if the subject DP is not QRed, the judge argument must be filled – by x_T – in that DP for the composition with the universal determiner to succeed. Thus the infelicity of the b sentence is predicted on the cotextualist analysis.

⁶ $g(x_T)$ is the value assigned to x_T by the variable assignment g .

A semantic judge index, on the other hand, in a relativist theory with an analysis of the subjective attitude à la Stephenson (cf. Section 2.2.2) or as in (14), will be accessible to the attitude on either construal, a or b (as long as in b the subject is not raised past the attitude verb), so contraposition should work *salva felicitate*.

What we observe here is a mirror image of the situation observed by Percus (2000: 196ff.) in connection with *de re* readings of definite descriptions: If such readings are – as seems well-motivated – modelled as a long-distance binding of the world, or situation, index or variable associated with a nominal, then one has to explain why subject but not predicate nominals can get such interpretations. The deeper significance of this correlation must be left for future research, however.

4.3. FOCUS STRUCTURE

Yet another argument for a cotextualist analysis of judge-dependent properties and subjective attitudes can be derived from pairs such as (27a, b) (in Norwegian):

- (27) a. Jeg synes du er gift med en vakker mann.
 I seem you are married with a beautiful man
 ‘I find the man you are married to beautiful.’
 b. ??Jeg synes du kjenner en vakker mann.
 I seem you know a beautiful man

(27a) is felicitous because everything in the complement clause but the taste predicate *vakker* ‘beautiful’ can be interpreted as presupposed, as suggested by the English paraphrase; in this way, this predicate, as defined in (21) in Section 3.2, can stay unsaturated with respect to the judge argument, z , right up to the merge with the attitude verb. In a theory – like DRT – where a variable introduced in the presupposition can bind a variable in the descriptive content, and a notation where the denominator represents the presupposition, the complement clause in (27a) could have the following semantic representation:

- (27) c.
$$\frac{\lambda z \lambda s \text{ beautiful}(x)(z)(s)}{x \mid \text{man}(x), \text{married-to}(y)(x)(s_0)}$$

However, because the relation *know* is not, like *married to*, functional, such a reading is much more difficult to get with (27b), so here, the judge argument must be saturated, by a silent proform, within the DP containing the predicate, *a beautiful man*. – Again, the difference will be irrelevant in a framework which posits a shiftable judge index.

5. Time and Negation

The reductionist analysis of subjective attitudes developed in Section 3 has the advantage that it offers an explanation for the negative facts: Judge-invariant complement clauses cause a case of redundancy (on the relativist version) or a type conflict (on the cotextualist version). Section 4 provided some more fine-grained evidence favoring the cotextualist version. In this section, two potential problems arising from the reductionist nature of the analysis (on either version) are addressed: First, the question how to treat the separate tense in finite complement clauses (5.1), second, the prediction that there is no difference between external and internal negation (5.2).

5.1. TENSE AND TIME

The analysis of *find* encoded in (20), repeated here for convenience, is radically reductionistic in the sense that the matrix verb “evaporates”: it merely acts as a piece of “semantic glue”, pasting the matrix subject into the judge slot of the complement clause predicate.

$$(20) \quad find'_v = \lambda\phi_{(s(e(it)))} \lambda x \phi_v(x)$$

As long as nonfinite complements are concerned, this is unproblematic; the tense which appears on the finite attitude verb, for example in the last sentence in (28), will serve to temporally locate the state argument of the predicate of the embedded clause.

- (28) Music is always connected to the personal conception of beauty. I am growing, I am changing, and my conception of beauty is changing. What was beautiful for me today may not be beautiful tomorrow. Yesterday I did not find this piece of music beautiful; today I do.

Let us say that the nonfinite clause *I find this piece of music beautiful* denotes the set of states represented in (29) (\mathcal{B} represents *beautiful*, m represents *this piece of music*, and i represents me, the speaker).

$$(29) \quad \lambda s \mathcal{B}_v(m)(i)(s)$$

A past or present tense (and an implicit aspect) will transform this set of states into a set of times including or included in such a state and preceding or including (depending on the tense) the time of utterance; a temporal adverb like *yesterday* or *today* will then yield the truth condition that the day before the day including the time of utterance or the day including the time of utterance be such a time.

So far, so good; but if this analysis is extended to subjective attitude verbs embedding finite clauses, it faces a problem with tense and time:

While there are two finite verbs and thus two, maybe different, tenses in the attitude construction, the attitude verb, as defined in (20), only leaves room for one tense, in the following sense: the tense marked on the attitude verb needs a set of times or eventualities to operate on, but since the attitude verb itself does not contribute an event or state argument, such a set can only come from the complement clause; the state argument contributed by the predicate in the complement clause, however, is needed by the tense occurring in that clause.

To see the problem clearly, consider a sentence with the verb *think*, concentrating on the subjective sense, where this verb has present tense but the verb in the embedded clause has past tense:

(30) I think Obama gave a stellar performance on November 4.

On the face of it, the nonfinite clause *Obama give a stellar performance* denotes a set of events, call it E. Past tense (incorporating an aspect) will transform E into the set of times – call it T – preceding now and including a member of E. Then the temporal adjunct *on November 4* will say that November 4 belongs to T and close off the time variable, so that there is no such variable left for the matrix tense to operate on (recall that *think* is not assumed to provide a state or event argument of its own). Besides, the judge argument brought along by the adjective *stellar* will have to have been filled early on for the composition with the other, judge-independent expressions in the clause to succeed, making this clause unsuitable for the subjective attitude anyway.

The key to solving this dilemma seems to me to lie in two factors:

- 1 the judge-dependent predicate (such as *stellar*) introduces a state argument distinct from the eventuality argument that the tense in the complement clause operates on
- 2 semantic composition proceeds on two levels, one for presupposed, the other for nonpresupposed material, and the judge-dependent predicate is on its own on the latter level

As for 2, recall the observation made in 4.3 on the focus – background structure of clauses embedded under subjective attitude verbs: when the judge-dependent predicate is apparently not at the top level of the clause, it must be construed as the only item that is not presupposed. Thus only *stellar* is in focus in the embedded clause in (30). According to factor 1, this predicate can and must be taken to introduce a state argument of its own. So, again in a theory where a variable introduced in the presupposition can bind a variable in the descriptive content, and in a notation where the denominator represents the presupposition, the embedded clause in (30) could have a representation as in (30a):

$$(30) \quad \text{a.} \quad \frac{\lambda z \lambda s \text{ stellar}(e)(z)(s)}{e \mid \text{performance}(e), \text{agent}(o)(e), \tau(e) \subset 041108}$$

That is: the performance Obama gave on Nov. 4 is in a state of being stellar in my eyes. The past tense and the temporal adverbial are thus detached from the state variable of the judge-variant predicate.

A similar story can be told about several different cases, e.g., (31).

(31) I think Agüero was outstanding yesterday.

$$(31) \quad \text{a.} \quad \frac{\lambda z \lambda s \text{ outstanding}(e)(z)(s)}{e \mid \text{agent}(a)(e), \tau(e) \subset \text{yesterday}(t_0)}$$

The state of being outstanding is not one that obtained yesterday, and it is not one that Agüero was or is in; it is one that the presupposed event occurring yesterday (during a soccer match, presumably) whose agent was Sergio Agüero, is in today – after the matrix verb stem has identified z with me, the present tense will transform the set of states s to the set of times t s.t. $t \subset \tau(s)$ and including the utterance time, and a silent *now* will saturate the characteristic function of that set.

It goes without saying that this is not the final word on the matter. More must be said about the presupposed / nonpresupposed material distinction, regarding its origin and its compositional implementation. I have sketched one way to defend the reductionist analysis; there may be other, more or less different, ways, and the question whether this or another way is general enough to account for all the relevant facts must await further investigations. Note, however, that one particular class of facts is accounted for without any extra assumptions: when the relevant judge-dependent predicate is a deontic or bouletic modal (these cases are discussed in Section 6.2 below), the embedded tense is doubly embedded, under the modal, and the modal can be ascribed a relative present or “zero tense” (Abusch 1993: 58ff., von Stechow 1995).

5.2. NEGATION

The analysis encoded in (20) – extended to subjective attitude verbs embedding finite clauses, like (a disambiguated) *think* – predicts that there is no semantic difference between external and internal negation (or other sentential modification), that is, negating the matrix clause amounts to the same as negating the complement clause. The reason lies, once again, in the reductionist nature of the analysis: the matrix verb and its subject reduce to nothing once they have done their job, that of saturating the judge argument of the complement.

In fact, it is not clear what it means for negation to be internal here, as there is no type t (or (st)) node between the attitude verb and the relevant judge-dependent predicate. So if this predicate is an adjective, a *not* in the scope of the attitude verb has to operate on (effectively) a relation between individuals (judges) and states or on the adjective's full denotation, outputting its complement. While that can hardly be ruled out – we do say things like (32) – it is not unproblematic.

- (32) The difference between a beautiful woman and a not beautiful woman is very slight. (web example)

As it turns out, examples of unambiguously subjective attitude verbs with a negation in the (finite) complement clause may seem to be rare; as of March 8, 2009, Google returns for a search on

- (33) a. “jag tycker inte han är” (Swedish): 160 hits
I think not he is
b. “jag tycker han inte är” (Swedish): 3 hits
I think he not is
- (34) a. “jeg synes ikke han er” (Danish or Norwegian): 155 hits
I think not he is
b. “jeg synes han ikke er” (Danish or Norwegian): 2 hits
I think he not is

On the other hand, there are nearly as many hits for a search on “je trouve qu'elle (n')est pas” as for one on “je (ne) trouve pas qu'elle est”. Anyway, assuming, for the sake of argument, that negation can indeed be internal, there will actually be a difference between the two cases; while the external negation in (35) scopes over the closure of the state argument, with the internal negation in (36) it is the other way around:

- (35) a. Bernard trouve pas qu'Amélie est belle.
b. $\neg \exists s t_0 \subset \tau(s) \wedge \mathcal{B}_v(a)(b)(s)$
- (36) a. Bernard trouve qu'Amélie n'est pas belle.
b. $\exists s t_0 \subset \tau(s) \wedge \neg \mathcal{B}_v(a)(b)(s)$

On the reasonable assumption that the set of states surrounding the utterance time is never empty, this has the consequence that the external negation sentence is stronger than the internal negation sentence. While this unilateral entailment can be made bilateral by treating the state argument as a deictic or anaphoric entity, the prediction remains that, in particular, a sentence like (the Swedish) (37) is contradictory:

- (37) Hon tycker inte att han är snygg, men hon tycker inte
 She thinks not that he is handsome but she thinks not
 att han inte är snygg heller.
 that he is not handsome either

And in normal circumstances, it would be judged to be contradictory. This is superficially indistinguishable, however, from the phenomenon known from a wide class of predicates by the name **neg-raising** (e.g. Horn (1978); see Gajewski (2007) for a recent survey and analysis). This class includes nonsubjective attitude verbs like *believe*, or the nonsubjective *think*, where the (standard) semantics predicts a clear difference between internal and external negation.

- (38) ?I don't think he is gay, but I don't think he's not gay either.

Thus even if it proves difficult to detect a difference between external and internal negation as far as subjective attitude verbs are concerned, this finding does not strengthen the reductionist analysis as much as it would if these were the only attitude verbs exhibiting such a behavior – it merely does not weaken it.

Now sentences like (39) are supposed to be ambiguous in principle; in certain contexts, in particular, contexts suspending the expertise or authority of the matrix subject, the matrix negation behaves normally, i.e., it is not understood as if in the lower clause:

- (39) (Mary does not even know that Gene is a man, so:)
 She DOESN't think he's the father.

Do sentences with subjective *think* show evidence of a parallel effect? Judging from (40), it could seem so:

- (40) (Mary has not even seen a picture of Gene, so:) She DOESN't
 think he's good-looking.

Here it is not implied that she thinks he is not good-looking. However, this does not necessarily mean that the external negation sentence is weaker than the internal negation sentence. The situation in (40) can be interpreted, alternatively, as a presupposition failure, where neither “she thinks he's good-looking” nor “she thinks he's not good-looking” is defined because the presupposition of the subjective attitude verb – viz., its subject is in a position to judge the property ascription – fails; what *not* signals is just this, not that the sentence is false. This would describe the ‘abnormal circumstances’ under which sentences like (37) would not be judged to be contradictory after all: the uppermost *inte* would signal presupposition failure, not falsity.

A parallel presupposition plays a central role in the theory of neg-raising proposed by Gajewski (2007), taking a cue from Bartsch (1973). There are clear differences, however: in the Bartsch/Gajewski theory, there is a pragmatic presupposition responsible for strengthening the external negation sentence, one which can be cancelled – as in (39) – so as to restore the normal, weak semantics; in the analysis of subjective attitudes, the strength of the external negation sentence is hard-wired, and the presupposition serves to explain an apparent weak reading as a case of what many, after Horn (1985), call a metalinguistic negation, marking presupposition failure.

It seems possible, then, to defend the reductionist analysis, where the subjective attitude is not something that could be negated as such. The defense has a cost, though; it appears necessary

- to assume that negation can operate fairly freely on relations,
- to view the state argument more as a definite than as an indefinite,
- to interpret external negation as metalinguistic negation reflecting presupposition failure if the subject is not in a position to judge.

These items of expenditure must be borne in mind when the strengths and weaknesses of the analysis are to be assessed in Section 7.

6. Standards and Ordering Sources

So far, attention has been concentrated on predicates of personal taste, and the other two types of judge-sensitive items identified in Section 1, dimensional adjectives in the positive and normative modal expressions, have been out of view. This section aims at redressing that imbalance, asking where a judge argument is to be located in these cases and answering that it is projected not by the relevant morphemes themselves but by certain contextual parameters associated with them, namely, the standard of comparison in the case of adjectives in the positive and a normative ordering source in the case of modals.

6.1. THE POSITIVE AND THE STANDARD

On the premiss that subjective attitude verbs are diagnostics of judge-variance, relative adjectives that are not predicates of personal taste emerge as judge-variant, but evidently only in the positive; in the three pairs of sentences below, each in a different Scandinavian language, the first member contains an adjective in the positive and is felicitous, while the second member contains the same adjective in the comparative and is clearly less felicitous.

- (41) a. Hun synes mit hår er kort. (Danish)
 she seems my hair is short
 b. ?Hun synes mit hår er kortere end Lises.
 she seems my hair is shorter than Lise's
- (42) a. De synes det er langt til lege. (Norwegian)
 they seem it is far to doctor
 b. ?De synes det er lengre til lege enn til skole.
 they seem it is farther to doctor than to school
- (43) a. Jag tycker bränsleförbrukningen är hög. (Swedish)
 I think fuelconsumption-the is high
 b. ?Jag tycker bränsleförbrukningen är högre än i PVn.
 I think fuelconsumption_{the} is higher than in PV_{the}

These facts suggest that the locus of judge variance be sought not in the stem of the adjective but in the positive formative.

This, in turn, presupposes a theory where a positive formative is indeed assumed, and Kennedy's (2007) theory of gradable adjectives is such a theory, positing a covert morpheme *pos* stating an inequality in terms of the contextual parameter *s*, the standard:

The Semantics of *pos* according to Kennedy (2007: 17):

$$\llbracket pos \rrbracket = \lambda g \lambda x g(x) \geq \mathbf{s}(g)$$

Here “*s* is a context-sensitive function from measure functions to degrees that returns a standard of comparison based both on properties of the adjective *g* . . . and on features of the context of utterance” (Kennedy 2007: 16), “in such a way as to ensure that the objects that the positive form is true of ‘stand out’ in the context of utterance, relative to the kind of measurement the adjective encodes” (ibid., 17).

Kennedy stresses that the standard *s* is very sensitive to influences from various sources. Among the factors influencing *s* are the time and world indices, as witnessed by the following two examples:

- (44) At that time, this small farm was a large one.
 (45) In America even this large farm would be small.

(44) can be true even if the absolute size of the farm has not changed since that time, as can (45) even if the absolute size of the farm would be the same if it were in America. The reason is that the standard can have changed since that time and that the standard can be different in possible worlds where the farm is in America. Thus in a first step, we can elaborate on Kennedy's definition of the positive to make both *g* and *s* sensitive to the time and the world of evaluation:

$$(46) \quad pos'_{t,v} = \lambda g \lambda x g_{t,v}(x) \geq \mathbf{s}_{t,v}(g)$$

Next, if the locus of the judge variance attested in (41)–(43) is in *pos*, the precise locus must be, not the measure function denoted by the adjective or adverb stem, nor the inequality relation, but the standard. That a standard of comparison can be subjective and vary from person to person seems almost a platitude; in fact, it is, I believe, assumed – more or less explicitly – in most of the literature on relative adjectives. The standard is based on features of the context of utterance, and the judge is such a feature. To make the dependence on this feature visible, (46) could be augmented to supply \mathbf{s} with a judge argument:

$$(47) \quad pos'_{t,v} = \lambda g \lambda x \lambda z g_{t,v}(x) \geq \mathbf{s}_{t,v}(z)(g)$$

This should not be taken to imply that the interpretation of a relative adjective in the positive is always a matter of taste, or that adjective forms like *big* are every bit as subjective as personal taste predicates; it seems reasonable to say that, depending on the other features of the context of utterance, the judge argument can be ‘idle’ in the sense that the standard is a constant function with respect to it. So if it is filled by the silent proform or by the distinguished variable (cf. Section 3.2), referring to some salient individual, this individual does not necessarily make a difference to the ultimate value of the \mathbf{s} function.

On the other hand, if the judge argument is ultimately filled by the subject of a subjective attitude verb, it is not ‘idle’ but ‘active’, and the adjective form is interpreted according to a subjective standard; a sentence like (48a) gets an interpretation paraphrasable by (48b):

- (48) a. Jag tycker inte att 1 liter milen är mycket. (Swedish)
 I think not that 1 litre mile_{the} is much
 b. It is not the case that 1 litre per 10 kilometers is at least
 as great as my standard for *much* concerning a car’s fuel
 consumption.

6.2. THE NORMS AND THEIR SOURCES

Modals constitute the last class of items emerging as judge-sensitive if the ability to license a subjective attitude verb is taken as diagnostic. A modal can have this ability, but not just any modal; as it turns out, epistemic modals, or modals used *in view of* an epistemic modal base and a ‘stereotypical’ ordering source (in the sense of Kratzer 1981), fail to license subjective attitudes, cf. (49).

- (49) ??Ute findet, es muss gestern geregnet haben. (German)
 Ute finds it must yesterday rained have

This failure to license subjective attitudes is conspicuous, insofar as epistemic modals have recently been argued to be assessment-sensitive (e.g. by MacFarlane (to appear), Egan (2007), and Stephenson (2007)). That they may be; but – at least as far as the languages I consider are concerned – they evidently do not depend on the same sort of assessment as do predicates of personal taste, dimensional or quantificational adjectives in the positive, and normative modals.

That said, though, the range of normative-modal expressions that can license subjective attitude verbs is very wide: beside run-of-the-mill deontic modals like the past subjunctive of the German auxiliary verb *sollen*, as in (50), or the past perfect subjunctive of *müssen*, as in (51), we encounter (unsurprisingly) adverbs like French *trop* ‘too’, as in (52), and a variety of covertly modal expressions like *deserve*, as in (53).⁷

- (50) Torsten findet, die Todesstrafe sollte abgeschafft werden.
 Torsten finds the deathpenalty should abolished become
 ‘Torsten thinks capital punishment ought to be abolished.’
- (51) Chiara findet natürlich, Italien hätte gewinnen müssen.
 Chiara finds naturally Italy had_{subj} win must
 ‘Chiara, of course, thinks that Italy should have won.’
- (52) J’ai trouvé la viande trop acide à cause du citron.
 I’ve found the meat too acid at cause of-the lemon
 ‘I found the meat too sour on account of the lemon.’
- (53) Ich finde, unser Sieg ist verdient.
 I find our victory is deserved
 ‘I think we deserved to win.’

It is worth noting that the subjective attitude imposes a ‘preferential’ interpretation on the modal (Kratzer 1977: 338), one where the various flavors of necessity or possibility are relativized to the preferences of a particular person or group, here the extension of the external subject. Generally, subjective attitudes see to it that the modal is interpreted in view of the ideals of their subject.

Ideals spring from normative ordering sources (Kratzer 1991: 646), interacting with circumstantial modal bases. In Kratzer’s theory, the modal base (conventionally *f*) and the ordering source (conventionally *g*) form the duplex conversational background parameter associated with any utterance of any modal. It seems reasonable, then, to encode

⁷ As demonstrated by Lande (2009), the span of lexical and phrasal diversity in this area is very wide indeed.

the judge dependence by attributing a judge argument not to the modal itself, but to a contextual parameter, here the ordering source g .

This move mirrors that made in connection with the positive in 6.1: the judge argument is in both cases linked to a contextual parameter. For reasons having to do with composition, though, just as the judge argument of the standard s had to be coded as an argument of the positive, the judge argument of the ordering source g has to be coded as an argument of the modal, say, *ought*:

$$(54) \quad \textit{ought}'_v{}^{f,g} = \lambda\phi\lambda z \mathcal{O}_v^{f,g(z)}(\phi)$$

The judge argument, whether filled by a(nother) contextual parameter (the distinguished variable x_T , the silent proform **pro**, cf. 3.2 and 2.1) or ultimately by the subject of a subjective attitude verb, will specify the otherwise underspecified ‘source’ of the normative ordering source, explicating whose ideals are relevant. For example, (55) will be true in v (if *devrait* is uttered) in view of modal base f and ordering source g iff the proposition that tiger hunting is banned is a necessity wrt. $f(v)$ and $g(i)(v)$, the latter set of propositions being my preferences in v .

- (55) Je trouve que la chasse aux tigres devrait être interdite.
 I find that the hunt at-the tigers ought be forbidden
 ‘I think tiger hunting should be banned.’

Again, however, the attribution of a judge argument to, here, the g parameter should not be taken to imply that all ordering sources are always sensitive to changes in this argument. For one thing, g is a heterogeneous entity: while the normative variant (yielding ideals) associated with deontic interpretations is intrinsically judge-variant, the ‘stereotypical’ variant (yielding generalizations) associated with epistemic interpretations is not and may well lack this argument (the entry for *ought* in (54) would be paired with another entry without z). Second, the judge argument can, as assumed in connection with the standard of comparison in 6.1 above, be ‘idle’; often when it is filled by x_T , the distinguished variable, or the silent proform **pro**, referring to some salient individual, this individual will not make a difference to the ultimate value of the g function.

7. Outlook and Conclusions

A judge in some form – a semantic index, a contextual parameter, or a cotextual argument – appears as a helpful, if not to say an essential, tool for explaining the negative facts noted in Section 1: subjective

attitudes embedding objective clauses – i.e., clauses without subjective predicates – are semantically ill-formed, and predictably so if, and, it seems, only if, the meaning of a subjective predicate is at some level – intension, character, extension – analyzed as a nonconstant function from judges. Then the subjective attitude can be taken to operate on this aspect of the meaning of its object, and be shown to be redundant (in case the judge is an index and intensions are functions from judges) or to cause a type conflict (in case the judge is a cotextual argument and extensions are functions from judges). This was done in Section 3.

Section 4 brought additional evidence to bear on the choice between the relativist and the cotextualist approach, concluding that only the latter, on which the judge is an argument of the relevant predicate, is equipped to account for the requirement that the subjective predicate be accessible to the subjective attitude at a structural, compositional level. This approach thus emerges as relatively successful.

There are prices to be paid, though. Already in Section 4, we noted that the same facts that motivate a judge argument also force us to assume that when that argument is saturated by a type of free variable – the default case, after all – this does not happen structurally but lexically. On the whole, the proposed analysis is very restrictive, compressing the subjective attitude construction into narrow boundaries, and Section 5 addressed cases where the construction seems to transcend those boundaries, concluding that the analysis can be defended, but only at the cost of some maybe not uncontroversial assumptions.

There are further worries as well. Already in Section 3, it was noted that the analysis inherits a syntax–semantics interface problem from Stephenson’s analysis of *think*: the subjective attitude verb searches for something in search of a judge argument, but from a type theoretic point of view, this argument is indistinguishable from any old individual argument, so we have to appeal to syntactic subcategorization to prevent the attitude verb from combining with any old property. Generally, the judge argument is syntactically relatively defective, at least as far as the languages considered here are concerned; the closest one gets to a complement linked to the judge role are phrases with a preposition like *for* or dative phrases, and many predicates identified as subjective on the basis of subjective attitudes fail to combine with such phrases. These considerations may cast doubt on the plausibility of the assumption that subjective predicates have a judge argument.

One may also ask whether the analysis does not idealize too much in the face of lexical variation, intra- as well as interlinguistically. It is in fact difficult to identify an attitude verb as unequivocally subjective and equivalent to a verb in some other, not too closely related language. The Swedish *tycka* and the Norwegian *synes* are good candidates, but

once they are compared to the French *trouver* or the German *finden*, they turn out to have not only a somewhat narrower but also a slightly wider distribution, corresponding to *croire* or *glauben* when the relevant predicate in the complement clause is a verb of perception and the two subjects corefer (as, for example, in *we thought we heard a nightingale*). Also, there may be verbs “overlapping with” the “primary” subjective attitude verb, interchangeable in some, but not in most, contexts, and it may appear an oversimplification to ascribe a judge shifting semantics to one verb but not the other.

Nevertheless, it is difficult to see how the quite robust negative facts about the clear cases could be accounted for unless they can be traced to some precisely identifiable feature: the semantic ill-formedness of (7) demands an explanation in terms of something specific which the verb needs but the complement clause fails to provide.

(7) #Homer finds Bart gay.

This cannot be anything as vague or shallow as a \pm subjective feature. However, once a parameter of judgment – in various forms and guises, linguistic and metalinguistic – is argued for on independent grounds, this would seem to meet the need and to provide a means to explicate what the attitude needs but the complement predication may or may not offer, – and the aim of this paper has been to explore this option.

Indeed, we obtain a strong semantic justification of the core facts if we do assume that the subjective attitude shifts the judge and that it exhausts itself in doing so. And once we consider some more facts, we further obtain an argument for one way of modelling the judge – not as a shiftable index, in principle relevant for all words, but as a lambda bound variable augmenting the logical type of certain words, the judge-sensitive words. This approach presents problems of its own, and I have tried to sketch how one could go about resolving them; but only further work can establish whether the gain arising from a formal treatment of subjective attitudes utilizing the parameter of judgment outweighs those problems.

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References

- Abusch, D. (1993). Two Theories of Tense in Intensional Contexts. In P. Dekker and M. Stokhof (Eds.), *Proceedings of the 9th Amsterdam Colloquium* (47–66). Amsterdam: ILLC.
- Bartsch, R. (1973). “Negative Transportation” gibt es nicht. *Linguistische Berichte*, **27**, 1–7.
- Brogaard, B. (ed.) (2009). *Relative Truth*. Special Double Issue of *Synthese*.
- Egan, A. (2007). Epistemic Modals, Relativism, and Assertion. *Philosophical Studies*, **133**, 1–22.
- Gajewski, J. R. (2007). Neg-Raising and Polarity. *Linguistics and Philosophy*, **30**, 289–328.
- Glanzberg, M. (2007). Context, Content, and Relativism. *Philosophical Studies*, **136**, 1–29.
- Heim, I. (to appear). Definiteness and Indefiniteness. To appear in C. Maienborn, P. Portner and K. von Stechow (Eds.), *Semantics: an International Handbook of Natural Language Meaning*. Berlin: Mouton de Gruyter.
- Horn, L. R. (1978). Remarks on Neg-Raising. In P. Cole (Ed.), *Syntax and Semantics 9: Pragmatics* (129–220). New York: Academic Press.
- Horn, L. R. (1985). Metalinguistic Negation and Pragmatic Ambiguity. *Language*, **61**, 121–174.
- Kennedy, Ch. (2007). Vagueness and Grammar: The Semantics of Relative and Absolute Gradable Adjectives. *Linguistics and Philosophy*, **30**, 1–45.
- Kölbel, M. and M. García-Carpintero (eds.) (2008). *Relative Truth*. Oxford: Oxford University Press.
- Kratzer, A. (1977). What ‘must’ and ‘can’ must and can mean. *Linguistics and Philosophy*, **1**, 337–355.
- Kratzer, A. (1981). The Notional Category of Modality. In H.-J. Eikmeyer and H. Rieser (Eds.), *Words, Worlds and Contexts* (38–74). Berlin: Walter de Gruyter.
- Kratzer, A. (1991). Modality. In A. von Stechow and D. Wunderlich (Eds.), *Semantics: an International Handbook of Contemporary Research* (639–650). Berlin: Walter de Gruyter.
- Lande, I. (2009). *Subjektive Einstellungsberichte im Deutschen: Einstellungsverben und beurteilungsabhängige Prädikate*. MA thesis, University of Oslo.
- Lasnik, P. (2005). Context Dependence, Disagreement, and Predicates of Personal Taste. *Linguistics and Philosophy*, **28**, 643–686.
- Lasnik, P. (2009). Relative Truth, Speaker Commitment, and Control of Implicit Arguments. In B. Brogaard (Ed.) (2009), 359–374.
- MacFarlane, J. (to appear). Epistemic Modals are Assessment-Sensitive. To appear in B. Weatherston and A. Egan (Eds.), *Epistemic Modality*. Oxford: OUP.
- Moltmann, F. (2009). Relative Truth and the First Person. To appear in *Philosophical Studies*.
- Nouwen, R. (2007). The (absolute) truth about taste. Presentation at the 8th Szklarska Poreba workshop on the Roots of Pragmasemantics.
- Percus, O. (2000). Constraints on some other variables in syntax. *Natural Language Semantics*, **8**, 173–229.
- Stechow, A. von (1995). On the Proper Treatment of Tense. In M. Simons and T. Galloway (Eds.), *Proceedings from Semantics and Linguistic Theory V* (362–386). Ithaca, New York: CLC.
- Stephenson, T. (2007). Judge Dependence, Epistemic Modals, and Predicates of Personal Taste. *Linguistics and Philosophy*, **30**, 487–525.

- Stephenson, T. (2007a). *Towards a Theory of Subjective Meaning*. PhD dissertation, MIT.
- Stojanovic, I. (2007). Talking about Taste: Disagreement, Implicit Arguments, and Relative Truth. *Linguistics and Philosophy*, **30**, 691–706.