Trovo vs. *considero*:
Expressing subjective attitudes in Italian

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Abstract. Subjective Attitude Verbs (SAVs), like *find* and *consider*, are propositional attitude verbs which only embed subjective clauses [20], including, crucially, clauses having a predicate of personal taste (PPTs, see [15]) as the main predicate. Since PPTs are often said to require a relativization to some 'judge' [15,17,18], SAVs are conceived as being sensitive to such relativity. Although several formal accounts have been put forward, some fundamental aspects remain controversial. On one hand, some authors have denied that SAV-judgements imply a belief of the matrix subject [2,20]. On the other hand, the nature of their selectivity is still unclear, given that ordinary gradable adjectives are also acceptable under SAVs: this fact has been accounted for in terms of a semantic ambiguity between purely dimensional and evaluative senses [10,11]. In order to address these issues, it is here proposed to frame subjective judgements in contexts of potential doxastic conflict, i.e., situations where a speaker holds a belief that p but, for some reasons, her perceptual experience (temporarily) suggests that $\neg p$. Results from an experimental study conducted in Italian, testing native speakers' acceptability intuitions on such constructions, suggest that *trovo* ('find') differs from *considero* ('consider') in that it lacks a doxastic component. Furthermore, the supposed polysemy of gradable adjectives proposed by Kennedy [10] was not sufficient to explain the results obtained.

Keywords: Subjective attitude verbs · predicates of personal taste · propositional attitudes · subjectivity · Italian

1 Introduction

Subjective attitude verbs (SAVs) are a class of verbs, like English *find* and *consider*, which appear to select only subjective complement clauses, in the intuitive sense that the truth-conditional contribution of their embedded clause is not dependent exclusively on some 'matter of fact', but also on some 'matter of discretion', related to the opinion, taste or experience of some relevant individual(s) [2,10,21,12,20].

As their selectivity involves the notion of subjectivity, SAVs have received considerable attention for their obvious connection to predicates of personal

taste (PPTs; see [15]) and faultless disagreement (FD; see [14]), prompting a number of proposals that try to account for these phenomena [3,7,1,10,21,22]. However, no clear consensus has been reached about what subjectivity actually amounts to and how to characterize both PPTs and SAVs.

Part of the problem may be that the discussion is often based on some controversial linguistic data, and authors have mainly relied on their own intuitions to assess their acceptability. While this strategy may be reliable in most cases, experimental methodology seems more appropriate for dealing with such fine judgements. The purpose of the present work, therefore, is to fill this gap by introducing an experimental framework, designed to test some of the hypotheses emerged in the literature. Specifically, the study aims to addresses two crucial issues regarding SAVs, namely the nature of their selectivity and their status as doxastic attitude verbs.

2 Subjective Attitude Verbs

2.1 Subjective attitudes and personal taste

Sæbø [20] first identified Subjective Attitude Verbs (SAVs) as a class of propositional attitude verbs in different languages (including English *find* and *consider*, German *finden*, Norwegian *synes*, Swedish *tycka*, French *trouver* and Chinese *jué dé*) exhibiting a uniform behavior with regards to the kind of complement clauses they can embed. In particular, SAVs felicitously embed clauses whose content is somehow subjective, while clauses expressing an objective proposition (i.e., whose truth depends on some matter of fact) are not accepted.

(1) a. I find this cake tasty.
     b. I consider this cake tasty.
     c. I think this cake is tasty.
(2) a. # I find dinosaurs extinct.
     b. # I consider dinosaurs extinct.
     c. I think dinosaurs are extinct.

Interestingly, acceptability under *find* picks out the same predicates that license so-called 'faultless disagreement', i.e., an exchange like (3) where two interlocutors contradict each other, without there being any fact of the matter that can be invoked to settle the disagreement itself and no speaker is 'at fault' (cf. [14,15]).

(3) Mary: This cake is tasty!
    John: No, it is not!

Most notably, faultless disagreement and embedding under *find* are licensed by expressions like *tasty* or *fun*, known as predicates of personal taste (PPTs)[1]. The

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[1] Though gradable adjectives in general may also give rise to these configurations (see §2.3).

semantic contribution of such predicates is generally thought to depend upon the experience or the assessment of some relevant individual(s), called 'judge'. Consequently, PPTs are claimed to require a relativization to the judge, either positing an extra parameter in the circumstance of evaluation (relativism, see [15,18,17]) or assuming that the context of utterance determines the judge (contextualism, see [5,19]). However subjectivity may ultimately be characterized, the patterns reported in (1) and (2) suggest that the grammar is somehow sensitive to it, and this sensitivity clearly calls for a formal explanation [2]. Nonetheless, more controversial points on SAVs challenge such an explanation: in the next sections we will focus on two such issues, i.e., the doxastic component of SAVs and their relation to dimensional predicates.

2.2 The doxastic component

Stephenson [18] observed that, contrary to plain doxastic attitude verbs, *find* triggers the strong implication that the matrix subject is related to the content of the attitude by some first-hand experience. Note that, in this case, *consider* patterns with think:

(4) a. Sam finds the cat food tasty, # because the cat has eaten a lot of it.
     b. Sam considers the cat food tasty, because the cat has eaten a lot of it.
     c. Sam thinks the cat food is tasty, because the cat has eaten a lot of it.

Assuming that Sam is a human being, in (4b) and (4c) *tasty* can be interpreted as 'tasty to his cat' or 'tasty to cats'. This is confirmed by the felicity of giving non-direct evidence for the judgment. On the contrary, this reading is not available in (4a), where the only interpretation is that Sam actually tasted the cat food (as odd as it may sound).

This observation led Stephenson to add an extra requirement of 'direct experience' to the meaning of *find*, resulting in the lexical entry in (5). Note that she adopts a relativist framework, where the truth of a content is evaluated at a circumstance including a world and judge (we will ignore the time parameter for the sake of simplicity).

(5) $[\![\text{find}]\!]^{w,j} = [\lambda p_{s,et}.[\lambda x_e.\forall \langle w', y \rangle \in \text{Dox}_{w,x} : p(w')(y) = 1,$
     and this is caused by x having a direct experience of p in $w]\!]$

Sæbø [20], however, criticized this analysis: the direct experience requirement is able to rule out sentences like (6a), but not one like (6b), even though one should have the best possible direct experience of one's own sexuality.

(6) a. # Homer finds Bart gay.
     b. ? Homer finds himself gay.

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Sæbø then proposes a radical reductionist account, according to which SAVs (i) have no doxastic meaning, (ii) are specifically sensitive to judge-dependence and (iii) simply shift the judge parameter to the matrix subject. Sæbø actually gives two possible denotations along these lines, one compatible with a relativist framework (7), the other with a contextualist one (8). Both manage to rule out simple sentences with objective embedded clauses, although additional evidence is then offered in favor of the contextualist solution.

(7) $[\![\text{find}]\!]^{w,j} = [\lambda p_{s,et}.[\lambda x_e.p^{w,x}]]$
(8) $[\![\text{find}]\!]^{w} = [\lambda \phi_{s,et}.[\lambda x_e.\phi^{w}(x)]]$

The radical reductionist analysis has remained somehow a marginal solution (but see [2]): most accounts rely on the assumption that a *find*-attitude implies a belief in the content of the complement clause [4,10,12,16,18]. On the contrary, sensitivity to judge-dependence is commonly endorsed, to the point that embedding under *find* has become a widely adopted test for subjectivity (e.g. [10,3,22]). However, we will see in the following section that this assumption is not completely unproblematic, either.

2.3   The complement of SAVs

While it is quite straightforward to accept that SAVs select judge-dependent complements when considering PPTs, the picture becomes more complicated when we take into account ordinary gradable adjectives, like *big* and *tall*[2]. In fact, they can felicitously appear in the complement of SAVs, as shown in (9):

(9)   a. I find John tall.
      b. I consider John tall.

This was already recognized by Sæbø [20], who, however, also reported various contrasts from Scandinavian languages, showing that a comparative form of a dimensional adjective is infelicitous as the main predicate of the complement clause.

(10)   a. Hun synes mit hår er kort. (Danish)
             she   finds my hair is short
       b. ? Hun synes mit hår er kortere end Lises.
             she   finds my hair is shorter than Lise's

This observation led Sæbø to locate judge-dependence in the positive morphology of dimensional adjectives, rather than in their stem. Adopting the framework of degree semantics developed by Kennedy [8,9], Sæbø suggested that, in the case

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[2] In the following, I will refer to them as dimensional adjectives, to distinguish them from evaluative adjectives, which are also gradable (see [10,3] a.o.).

of dimensional adjectives, the standard of comparison s, provided by the covert morpheme POS, would depend on several contextual factors, including, crucially, the judge. This is made explicit in the following formal characterization of the positive morpheme, where g is a measure function, x is the object and z is the judge:

(11) $[\![\text{POS}]\!]^w = [\lambda g.[\lambda z_e.g^w(x) \geq s^w(z)(g)]]$

The analysis in (11) ensures that a SAV can felicitously embed a dimensional adjective in the positive form, filling the judge argument with the subject of the attitude. However, Kennedy [10] noted that, in English, some dimensional adjectives may appear in the complement of *find* even in the comparative form.

(12) Beatrice finds that the flight from Chicago to Tokyo is longer than the flight from Chicago to Hong Kong.
(13) Beatrice thinks that the flight from Chicago to Tokyo is longer than the flight from Chicago to Hong Kong.

According to Kennedy, (13) would express a (false) belief about some objective fact of the world. The sentence in (12), on the contrary, would only have a reading concerning a subjective experience: maybe Beatrice flies to Tokyo in economy class and to Hong Kong in first class, so that the former seems to her longer than the latter. In order to explain this contrast, Kennedy argued that ordinary gradable adjectives showcase an ambiguity between a purely dimensional meaning and an evaluative one and that only occurrences of the latter type are embedded under *find*. An explicit formalization of this idea is provided in [11], where the quantitative and the qualitative meanings of the adjective *salty* are given the denotations in (14) and (15), respectively:

(14) $[\![_{A_{quant}}\text{salty}]\!] = [\lambda x_e.quant(salty)(x)]$
(15) $[\![_{A_{qual}}\text{salty}]\!] = [\lambda x_e.[\lambda y_e.qual_y(salty)(x)]$

Hirvonen [7] challenged the supposed polysemy, considering implausible that (16) could have two different meanings of the adjective *heavy* in its two occurrences:

(16) I found the Toshiba laptop heavier than the Mac. But we weighed them and in fact they are equally heavy.

To be sure, the example given by Hirvonen does not provide conclusive evidence: although implausible, nothing actually prevents the two occurrence of *heavy* from having different senses, analogous to (15) and (14), respectively. However, the contrastive structure in (16) suggests a possible way to disentangle those meanings.

2.4 Potential doxastic conflict

In order to test the doxastic component of verbs like *find*, it is here proposed to frame the subjective judgements in contexts of potential doxastic conflict,

i.e. situations where a speaker holds a belief that p but, for some reasons, her perceptual experience (temporarily) suggests that $\neg p$. This mismatch between belief and perception puts the speaker at risk of holding a contradictory belief, so she must either renounce her earlier belief (therefore changing her mind on the matter) or entertain a different kind of attitude towards the content of her perception. The scenario in (17) is an example of such a situation:

> **Context:** *Mary has to take some medicines that alter her taste for a little while. Nonetheless, one day, after taking her medicines, she can't help taking a slice of her mother's apple pie, her favorite one. The taste is terrible due to the medicines and therefore she says to her mother:*

(17) Your apple pie is tasty, but I have just taken my medicines so it doesn't taste good to me right now.

The sentence uttered by Mary avoids the contradiction by employing a verb of perception. Similarly, if we assume that something that tastes good to Mary is tasty to Mary, we observe that it is not possible to express the second conjunct of Mary's utterance in a doxastic attitude, while it seems felicitous under verbs like *feel* or *perceive*:

(18) # Your apple pie is tasty, but I have just taken my medicines so I don't believe it's tasty.

(19) Your apple pie is tasty, but I have just taken my medicines so I don't feel/perceive it (as) tasty.

Turning now to SAVs, we observe that *consider* gives rise to the same contradiction as (18) thus confirming that it does have a doxastic component, as expected:

(20) # Your apple pie is tasty, but I have just taken my medicines so I don't consider it tasty.

(21) #⇒ (I believe that) your apple pie is tasty ∧ I don't believe your apple pie is tasty.

If *find* implied a belief, as it is generally assumed, embedding under *find* should be equally unacceptable, since Mary would still be in a doxastic conflict. However, the sentence in (22) appears to be acceptable, or at least more acceptable than (20):

(22) Your apple pie is tasty, but I have just taken my medicines so I don't find it tasty.[3]

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[3] An anonymous reviewer kindly noted the following contrast:

The first hypothesis addressed here, then, is that in condition of potential doxastic conflict, a *find*-judgement should be more acceptable than a *consider*-judgement.

It is also suggested to use the potential doxastic conflict situation to test the presumed polysemy of ordinary gradable adjectives: in fact, if gradable adjectives have two available meanings, these could be exploited to avoid a contradiction in contexts of potential doxastic conflict. In order to see this more concretely, let us assume the two meanings of big to be big_{quant} and big_{qual}, as proposed by Kennedy [11]: now, a sentence like (23) could be paraphrased equally felicitously by (24) and (25), since the two clauses are not contradicting each other, as the implication in (26) shows (recall that *consider* is assumed to be compatible with both meanings):

(23) The Colosseum is very big, but from up here it doesn't seem big!

(24) The Colosseum is very big_{quant}, but from up here I don't find it big_{qual}!

(25) The Colosseum is very big_{quant}, but from up here I don't consider it big_{qual}!

(26) $\Rightarrow$ (I believe that) the Colosseum is big_{quant} $\wedge$ I don't believe the Colosseum is big_{qual}.

The second hypothesis tested, therefore, is that, with ordinary gradable adjectives, the polysemy would be enough to solve the apparent contradiction, thus making the choice between *find* and *consider* in the second clause irrelevant.

3 The experiment

3.1 Methods and materials

In order to test the hypotheses described above, an experimental study was conducted in Italian, in the form of a Two-alternative Forced-choice Task. The experiment was designed to measure the preference of *trovo* ('find-1SG') vs. *considero* ('consider-1SG') in relation to two independent variables: a) absence vs. presence of potential doxastic conflict; b) type of embedded predicate (PPT vs. gradable adjective).

(i) # In general, I consider your apple pie tasty, but I have just taken my medicines so I don't consider it tasty.

(ii) In general, I find your apple pie tasty, but I have just taken my medicines so I don't find it tasty.

I believe these examples are consistent with the idea that *consider* (but not *find*) does have a doxastic meaning, as presumably one would not revise a prior belief due to a patently misleading perception. Note, however, that these sentences pose extra complications, involving generic readings and/or quantification over events. For instance, if both *your apple pie* and the pronoun *it* had a generic meaning, (ii) would probably be as bad as (i). Of course, this matter will require further scrutiny.

The experiment was administered via the online platform surveytalent.com and consisted of two separate tests: the first one for the "doxastic-conflict" condition (DC), while the second one for the "no-doxastic-conflict" condition (no-DC). Each test contained 12 target items: 6 with ordinary gradable adjectives (GA) and 6 with PPTs. The items in the DC condition were constructed in such a way as to induce a potential doxastic conflict, along the lines of (20)/(22) and (24)/(25): each item, then, consisted of an unembedded judgement and an embedded judgement expressing an opposite attitude, following the schema *x is P, but I don't find/consider it P*. A blank was introduced in correspondence of the SAV, as shown below, and participants were asked to fill it by selecting between *trovo* and *considero*, as shown below:

(27) «Questo è uno dei film più divertenti in assoluto, ma ora non lo _____ divertente. Forse non sono dell'umore giusto: ho avuto una giornataccia a lavoro!» (choice: *trovo* vs. *considero*)
'This is one of the funniest movies ever, but now I don't _____ it funny. Maybe I'm not in right mood: I've had a bad day at work!'

For the second test, 12 more target items were constructed, using the same embedded predicates as those in the first test. The same avversative structure with two judgements (one unembedded, the other embedded under a SAV) was followed. This time, however, there was no doxastic conflict, as the two judgements were not explicitly contradicting each other. One such item is provided in (27):

(28) «Questo è il film più famoso di Checco Zalone[4], ma non lo _____ divertente. Le battute sono del tutto scontate.»
'This is the most famous movie by Checco Zalone, but I don't _____ it funny. The jokes are totally predictable.'

Each test also included 24 filler items, constructed as to require a choice between one of the two relevant SAVs (*trovo* or *considero*) and the verb *preferisco* ('prefer-1SG'), which appears to have similar distributions. The total number of participants was 87 for the first test and 38 for the second one.

3.2 Results

The results obtained from the two tests are plotted in Fig. 1. The data collected show that there is indeed a significant main effect of the "doxastic conflict" factor, thus confirming the experimental hypothesis. In particular, in the doxastic conflict condition, the choice of *trovo* is more likely than *considero* (DC vs no-DC: +1.01, z = 2.469, p = 0.0136). Therefore, the doxastic conflict condition resulted in a significantly higher probability of *trovo* than the condition with no doxastic conflict, no matter the embedded predicate.

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[4] Popular Italian comedian.
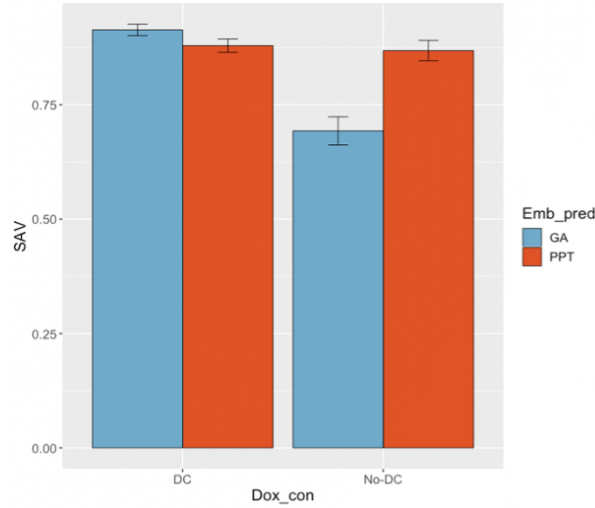
Fig. 1. Preferences of *trovo* over *considero* across the experimental conditions.

Further analysis also revealed a significant interaction between the factors "doxastic conflict" and "embedded predicate". In particular, with PPTs, the choice for *trovo* over *considero* does not seem to be significantly affected by the "doxastic conflict" factor. By contrast, with ordinary gradable adjectives, the choice for *trovo* is more likely in the "doxastic conflict" condition than in the "no-doxastic conflict" one (DC,GA - No-DC,GA: $+1.807$, $z = 3.731$, $p = 0.0011$). Moreover, in the "doxastic conflict" condition, the choice for *trovo* with an embedded PPT is not more likely than with an embedded gradable adjective, while in the "no-doxastic conflict" condition, the preference for *trovo* is less probable with ordinary gradable adjectives than with PPTs (No-DC,GA - No-DC,PPT: -1.230, $z = -2.652$, $p = 0.0400$).

In sum, the results indicate that three out of four factor combinations predict comparable probabilities of preference for *trovo*, while the only environment in which such probability is significantly lower is in the absence of potential doxastic conflict with embedded gradable adjectives.

3.3 Discussion

In general, the results showed that the presence of a potential doxastic conflict had a significant impact, in line with the first experimental hypothesis. This suggests that *trovare* does not have a doxastic meaning, making it a better option in situations of potential conflict.

However, no significant difference was found with PPTs, which triggered a general preference for *trovare* across all conditions. Given that *considero* felicitously embeds purely evaluative predicates, like PPTs, this pattern was not

expected, but it may be due to a frequency effect, which potentially masked any impact of the doxastic conflict.[5] It is also possible to speculate that this preference has to do with the inherently experiential nature of PPTs, which is compatible with the requirement of direct experience of *trovare* (see §2.2).

On the other hand, the doxastic conflict significantly affected the choice of *trovo* over *considero* when the embedded predicate was an ordinary gradable adjective. This suggests that speakers could not resort to an ambiguity of the adjective in order to avoid the doxastic conflict and, thus, that, without further provisions, the supposed polysemy proposed by Kennedy [10,11] is not able to explain the contrast observed. The results with gradable adjectives, in fact, are compatible with an interpretation of *trovare* lacking a doxastic component.

In any event, more refined experiments are needed to address the interaction between doxastic conflict and SAVs. The results from PPTs, in fact, highlight a major drawback of the Forced-choice Task, namely the fact that it does not allow us to determine how bad speakers would rate a sentence with *considero* in a doxastic conflict situation. Tests with acceptability ratings would be a better option for further investigation in this direction.

4 Conclusion

Overall, the data seem to point toward a characterization of *trovare* that does not imply a belief, which would be compatible with radical reductionist accounts. Moreover, the supposed polysemy of ordinary gradable adjectives was not sufficient to explain the asymmetry observed. These data could be taken to suggest

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[5] A brief search on two Italian corpora (Itwac and Repubblica) showed that, in configurations similar to those presented in the tests (clitic + trovo/considero + Adjectival Phrase), *trovo* occurs more frequently than *considero*. The results are the following:

itwac

    CLI+trovo(token)+ADV?+ADJ+!NOUN: 4749
    CLI+considero(token)+ADV?+ADJ+!NOUN: 657
    CLI+trovare(lemma)+ADV?+ADJ+!NOUN: 18728
    CLI+considerare(lemma)+ADV?+ADJ+!NOUN: 7609

Repubblica

    CLI+trovo(token)+ADV?+ADJ+!NOUN: 491
    CLI+considero(token)+ADV?+ADJ+!NOUN: 186
    CLI+trovare(lemma)+ADV?+ADJ+!NOUN: 2720
    CLI+considerare(lemma)+ADV?+ADJ+!NOUN: 1304

However, the frequency effect does not explain the sharp contrast observed between PPTs and gradable adjectives.

that, unless the choice for a SAV is determined by other factors[6], *trovare* is allowed to embed purely dimensional predicates. *contra* Kennedy [10,11].

The evidence presented here is still in line with Sæbø's analysis [20], although future studies could address the more controversial case of comparative forms: if it were shown that they may also be accepted in the complement of *find* in a configuration of potential doxastic conflict, then judge-dependence of dimensional adjectives could not be located in the POS morpheme.

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[6] Kennedy & Willer [13], developing a presuppositional account of SAVs, suggest that the Maximize Presupposition principle [6] may be active in the choice between *find* and *consider*.

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