

## Who shares that opinion? Testing effects of adjective valence and group diversity with predicates of personal taste

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We report two experiments on the *meaning of subjective adjectives* – specifically on the claim that predicates of personal taste (PPTs) are interpreted as expressing a social generalization about people that the speaker ‘identifies with’ (Moltmann’10, Pearson’13) – that builds on insights from *social psychology* about attitude generalization and group diversity. Our work strives to link three research traditions – formal semantics, experimental linguistics and social psychology – to explore the interplay between the semantics of subjective adjectives and general (non-linguistic) principles of human cognition in a socially-rooted context.

**Valence in opinion generalization:** Social psychologists have investigated how people form and generalize attitudes, including subjective impressions of people and objects (e.g. Fazio et al.’15). It is well-known that our perception of others’ opinions is egocentric: “If one believes that one’s own response is the natural reaction, then others who are confronted with the same reality should respond in the same way—unless they are somehow deviant. Consequently, one may believe that others share one’s opinions more than they really do” (Snyder et al.’78:92). Indeed, many studies show that humans rely too much on their own opinions when making predictions about others’ opinions, an effect called *egocentric attribution* (Heider’58), *projection* (Holmes’68), *egocentric bias* (Epley et al.’04) or *false consensus* (Ross et al.’77), inter alia.

However, if we **take egocentrism out of the equation**, *how do humans reason about the extent to which subjective opinions generalize to people other than the attitude-holder?* Prior work has looked at people projecting their *own* opinions onto others. What if someone has no opinion to project? Will we still assume that someone’s subjective opinion generalizes to others, even if the ‘someone’ is not us? In particular, what factors modulate the extent of ‘opinion generalization’ in non-egocentric context? Prior work in an egocentric context showed that **valence (positive/negative)** matters: People are more likely to over-attribute their own opinions to others when it comes to their *likes* (positive attitudes) than to their *dislikes* (negative attitudes; Gershoff et al. 2007). Our work minimizes effects of egocentric bias to dissociate effects of egocentrism from effects of opinion generalization: By minimizing effects of egocentric bias, we can gain a clearer view of the factors that modulate the extent to which we interpret one person’s opinion as being shared by others. *We use the linguistic phenomenon of subjective adjectives to investigate these issues, and also strive to inform linguistic theories of subjectivity:*

**Semantics of subjective adjectives:** In semantics, there has been a recent outburst of work on subjective adjectives (Lasersohn’05, Pearson’13, Solt’18, i.a.), including predicates of personal taste (PPTs, e.g. *delicious*, *fun*). PPTs express an individual’s subjective opinion—i.e., the opinion expressed by PPTs is linked to an attitude holder/judge. Crucially, Moltmann’10 and Pearson’13 claim that, contrary to what is often assumed, PPTs go beyond a 1st-person interpretation (also Snyder’13, Collins’13). According to Pearson(’13:121), “PPTs such as *tasty* are used to make statements *about whether something is tasty to people in general*, based on first person experience” (italics added). She proposes that PPTs are used to make statements about individuals that the speaker *identifies with*, where the relation *identify with* “is intended to model a notion of empathy.” Pearson and Moltmann formalize the generalizing force of PPTs with a generic operator, but Lasersohn’05 opposes a *people-in-general* approach.

**Research questions:** Pearson’s and Moltmann’s claim that PPTs are used to make generalizations intended to apply to others is an inherently social claim: When someone utters “Rollercoasters are fun”, to what extent is she making a statement only about herself or a statement about other people as well? If PPTs are used to make statements not only about the 1st-person speaker but also to express generalizations about others, then—given the social psychology work on valence—we ask whether an opinion’s perceived generality (how many others agree with it) is modulated by the PPT’s **valence (positive/negative)**. In addition, we also

ask if the perceived level of generality is modulated **by the extent to which a group is perceived as uniform/diverse**. Prior work shows that people generalize traits from one group member to other members *more with uniform than diverse groups* (e.g. Crawford et al.'02).

We tested these questions in **two studies**. Participants (Exp1: 42 native English speakers, Exp2: 36) saw items like ex(1), and typed in a number to indicate how many aliens share the alien's opinion about the 'thing.' Crucially, we used nonce words and an alien planet to avoid bias from people's opinions about real things, i.e. to rule out effects of egocentric biases. (NB: The question probes *generalization across judges/attitude holders*, not generalizations across 'things.' People type in a number for *how many aliens would agree*.)

(1) Example item in the main clause condition. (*All items had different nonce words*)  
 We are visiting an alien planet. You overhear one of the aliens say: **Hixes are fun.**  
 If we randomly select 100 aliens from this planet, how many of them do you think share this alien's opinion about hixes? \_\_\_\_\_ [type a number between 0 and 100]

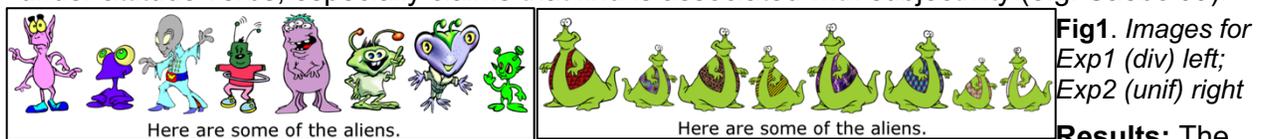
(2) Example item with a positive PPT

Main clause	Embedded under <i>think</i>	Embedded under <i>find</i>
(a) Hixes are fun.	(b) I think hixes are fun.	(c) I find hixes fun.

(We also manipulated tense and number, which is irrelevant here so conditions are collapsed.)

With each target, subjects in Exp.1 saw an image of **diverse** aliens, and in Exp.2 saw an image of **uniform** aliens (Fig.1). The studies were otherwise identical: Both had the same 30 targets, each about a different thing (and 51 fillers). Both had 12 negative (e.g. *disgusting, frightening*) and 18 positive PPTs (e.g. *amazing, fun*). PPT valence was normed (Warriner et al'13).

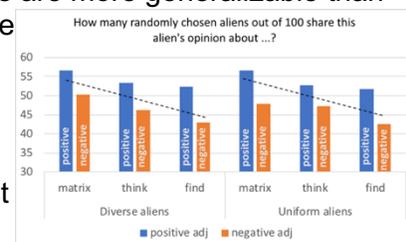
In addition to adjective valence and group uniformity/diversity, we manipulated whether the PPT was in a main clause, embedded under *think* or under *find*, to test effects of embedding under attitude verbs, especially claims that *find* is associated with subjectivity (e.g. Saebo'09).



**Fig1.** Images for Exp1 (div) left; Exp2 (unif) right

**Results:** The perceived generality of PPT statements is *not influenced* by whether the aliens look diverse or uniform (Fig.2, lmer,  $p's > 0.1$ ). But there is an **effect of valence**: Statements with **positive PPTs are rated more generalizable** (applicable to more attitude holders) than ones with negative PPTs, in all conditions ( $p's < .01$ ). This is visible in Fig.2. What does this mean for theories of PPTs? Moltmann'10 and Pearson'13's claim PPTs are used to make statements about people in general do *not* predict a positive/negative distinction, nor do other linguistic theories of PPTs. Given existing work in social psychology, we interpret the valence effect as an **extra-linguistic effect**, linked to domain-general cognitive processing. It is also important for linguistic theories of PPTs: If our aim is to understand whether or not PPTs are generic-across-judges (i.e. make statements about people in general), we need to consider both negative and positive PPTs (specifically, their difference in generalizability) in order to avoid drawing incorrect conclusions. There is also a **linguistic context effect**: PPTs in main clauses are more generalizable than PPTs under *think* or *find* ( $p's < .01$ ); and *find* is less generalizable than *think* (Exp1  $p = .07$ , Exp2  $p < .05$ ). This supports claims that *find* in particular embeds subjective content, analyses of PPTs as generalizing across attitude holders should reflect this.

We provide evidence of valence contributing to the generalizability of PPTs in *non-egocentric contexts*, but suggest that group uniformity does not in this context modulate the perceived level of generality of subjective claims.



**Fig.2.** Results for **Exp 1** (diverse aliens; left) and **Exp 2** (uniform aliens; right)