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How Much Do We Really Care What We Pick? Pre-verbal and Verbal Investment in Choices Concerning Faces and Figures

Alexandra Mouratidou[1] · **Jordan Zlatev**[1] · **Joost van de Weijer**[2]

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Abstract
Every day we make choices, but our degree of investment in them differs, both in terms of pre-verbal experience and verbal justification. In an earlier experimental study, participants were asked to pick the more attractive one among two human faces, and among two abstract figures, and later to provide verbal motivations for these choices. They did not know that in some of the cases their choices were manipulated (i.e., they were asked to motivate the item they had not chosen). Against claims about our unreliability as conscious agents (Nisbett et al. in Psychol Rev 84:231–259, 2013; Johansson et al. in Science 310:116–119, 2005), the study found that in about half the cases the manipulations were detected. In the present study, we investigated whether varying degrees of choice investment could be an explanatory factor for such findings. We analysed the verbal justifications of the participants along a set of semantic categories, based on theoretical ideas from phenomenology and cognitive linguistics, and formulated a matrix of eleven *markers of choice investment*. We predicted a greater degree of investment when motivating (a) choices of faces than figures, (b) manipulated than actual choices, and (c) detected than non-detected manipulations. These predictions were confirmed, but with various strength. This allows us to argue for both consilience and differences between pre-verbal choice investment and the corresponding verbal motivations of the choices made, and thus for (degrees of) conscious awareness of choice making.

Keywords Cognitive linguistics · Cognitive semiotics · Choice making · Construal · Consciousness · Phenomenology · First-person descriptions

The whole conduct of life consists of things done, which do other things in their turn, just so our behaviour and its fruits are essentially one and continuous and persistent and unquenchable, so the act has its way of abiding and showing and testifying, and so, among our innumerable acts are no arbitrary, senseless separations.
Henry James, The Golden Bowl

1 Introduction

According to the ancient Greek myth, Paris had to choose who among the goddesses Hera, Athena, or Aphrodite was the fairest. The choice became especially hard because each goddess attempted to bribe him with a gift. For the playwright Euripides, this myth concerns a choice between the values that each gift symbolizes, while more common interpretations take it as a choice based on the goddesses' beauty. Whichever his motive, Paris chose Aphrodite which subsequently led to his marriage with the future Helen of Troy, with well-known disastrous consequences.

Employing mythology to attempt to make sense of human experience is common in philosophical inquiries (e.g., Kierkegaard 1983; Derrida 1995), but choice making is also a pervasive feature of everyday life, as pointed out by Baierlé (2016, p. 7):

> Throughout our lives we have to make choices. After college we choose where and what to study. In a restaurant we choose what we want for dinner. When we

✉ Alexandra Mouratidou
alexandra.mouratidou@semiotik.lu.se

Jordan Zlatev
jordan.zlatev@ling.lu.se

Joost van de Weijer
joost.van_de_weijer@ling.lu.se

[1] Division for Cognitive Semiotics, Lund University, Lund, Sweden

[2] Humanities Laboratory, Lund University, Lund, Sweden

plan our holidays we choose between different alternatives. In some cases we need to choose the morally right thing to do. In other cases we need to choose whether we favour our self-interest over the interests of others. While some choices – like choosing the starter of one's dinner in a restaurant – are unlikely to have a big impact on one's life, others – like what and where to study after college – have an immense one. Sometimes different choices can lead us through different paths to the same place, other choices can lead us to completely different places. Ultimately, the person we become depends on our choices.

Every time we make a choice, we position ourselves in the present, evaluate the situation to the best of our abilities and commit ourselves to one particular future rather than another, under the motivational weight of the various alternatives (de Monticelli and Behr 2011). In other words, the degree to which a particular choice matters depends immensely on the nature of the situation we are in and the potential consequences of the choice. This experience of the "mattering" or meaningfulness of a choice is what we refer to as the (pre-verbal) *investment* in an act of choice making. The investment concerning the choice of meal at the restaurant will typically be lower than that concerning a career, or a partner in marriage. Sometimes we make the relevant choice silently, and the investment in question is purely experiential, or at least not overtly verbalized. But more often, we discuss our choices with others, or even only with ourselves, in dialogue, a basic function of language (Linell 2009). In such cases we have the methodological advantage of being able to compare choice investment in different situations. One of the major claims in this paper is that the notion of investment has been underestimated in choice making research, especially in experiments dealing with so-called "choice blindness" (e.g., Johansson et al. 2005).

Current approaches in cognitive science influenced by physicalism and/or computationalism (see e.g., Dennett 1991, 1996; Bargh and Fergunson 2000; Libet 2005; Wegner 2006, 2018; Johansson et al. 2014) share the premise of the illusory nature of conscious will, focusing their scientific inquiries into the mechanisms that underly our (false) experience as agents.[1] In such approaches, higher order mental phenomena, such as choice making, are usually studied in carefully controlled experiments. While these experiments are designed to secure *internal validity* (i.e., the degree to which we can confidently infer a causal relationship between variables, Jhangiani et al. 2019, p. 49), we may question their *translation validity*: the truthfulness of the operationalizations in relation to the phenomena studied (Slife et al. 2016). For example, in so-called "choice blindness" experiments (see Sect. 3), people are often tricked about the choices they are asked to make as part of the experimental task, sometimes ending up accepting and motivating choices they had not initially made. But can we on this basis conclude that participants lack awareness of their choices, and are in general unreliable as conscious agents, as proposed by Johansson et al. (2005)? If people make choices in an experiment with the primary motivation to complete the task at hand, are they not more or less subject to a "setting of indifference" (de Monticelli and Behr 2011, p. 14), which is qualitatively different from everyday life where choices are proclamations of who we are and who we wish to become?

Grounded in the discipline of cognitive semiotics, which itself is rooted in the philosophical tradition emanating from Husserl known as phenomenology (Sonesson 2009; Zlatev 2015, 2018), our aim in this article is to explore the notion of *choice investment* both theoretically and empirically. As we argue in Sect. 2, especially when enriched by many scholars from Merleau-Ponty (1962, 1968) to present days (Sokolowski 2000; Gallagher and Zahavi 2012; Zahavi 2010, 2014), phenomenology offers a rich palette of concepts and methods to study lived experience, including that of choice making. Phenomenology also teaches us to make a distinction between experience as such, and its expression in language. If our access to the former were not reliable, since intentionality is always subject to "attributions" dependent on language, phenomenological methods would be fatally flawed (e.g., Dennett 1991, 2007; Wegner 2018). Such a language-centred position is problematic for various reasons and antithetical to cognitive semiotics which emphasizes that language is just one, albeit important, *semiotic system*, and it does not hold any determining role over consciousness. Still, given that our empirical methodology is predicated on the analyses of verbal responses justifying different choice trials, it is necessary to start by arguing for correspondences—but not identity—between non-verbal and language-based intentionality, and thus between pre-verbal and verbal choice investment. Using concepts from phenomenology and cognitive linguistics we justify this approach in Sect. 2.

In Sect. 3, we discuss a recent study (Mouratidou 2020), involving a forced-choice manipulation experiment (see Fig. 1), where participants were shown pairs of pictures of faces or of abstract figures (A) and asked which was more attractive. The participant then made their choice (B). After that, the participant was shown one of the two items and

[1] Note the following representative citation: "The fact is, we find it enormously seductive to think of ourselves as having minds, and so we are drawn into an intuitive appreciation of our own conscious will. […]. Each of our actions is really the culmination of an intricate set of physical and mental processes, including psychological mechanisms that correspond to the traditional concept of will, in that they involve linkages between our thoughts and our actions. This is empirical will. However, we don't see this. Instead, we readily accept a far easier explanation of our behavior: We intended to do it, so we did it" (Wegner 2018, p. 24).

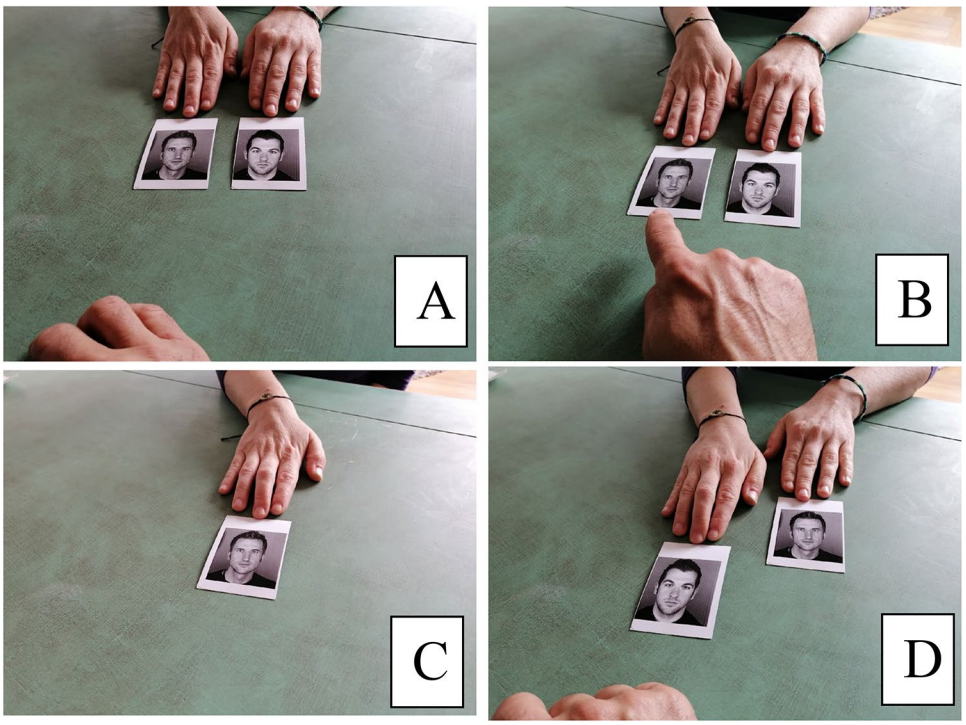

Fig. 1 The choice manipulation procedure. A participant is presented with two alternatives (**A**), asked to make a choice (**B**), asked if they had chosen it (**C**) and in a number of trials (manipulations) asked to justify the non-chosen alternative (**D**)

was asked if it was the preferred one (C). If the participant answered correctly, it was considered a Remembered item, and if not, a Misremembered item. Finally, the experimenter presented the chosen item (*actual* choice) or the non-chosen item (*manipulated* choice) and asked the participants to motivate their choice (D). Crucially, Mouratidou (2020) found that the manipulations for Remembered items were significantly more often detected (see Sect. 3) than in the case of Misremembered items. Further, the participants were more likely to notice and object to manipulations of Remembered faces than of Misremembered figures. This was sufficient for Mouratidou (2020) to argue that participants were not in any way "choice blind", but that they could be more or less "manipulation blind", influenced by factors such as memory and emotional valence. Why did these factors play such an important role? One possible answer is that the participants were more strongly invested in choices for faces compared to those for figures. In Sect. 3, we return to the results from the study, and describe how the verbal responses to manipulated choices differed from those to the actual (i.e., non-manipulated) choices.

For the present paper we further explored participants' verbal justifications for actual and manipulated choices concerning faces and figures to see if these indicate differences in investment. As pointed out above, we expected correspondences but not identity between pre-verbal and verbal choice investment. On the basis of operationalizations that we explain in Sect. 4, we tested the following general hypotheses, which we motivate as we go along:

- Justifications for choices concerning faces will be marked by a higher degree of investment than justifications for figures (H1)
- Justifications for manipulated choices will be marked by a higher degree of investment than justifications for actual choices (H2)
- Justifications for detected manipulations will be marked by a higher degree of investment than justifications for non-detected manipulations (H3)

In Sect. 5 we present the results for these hypotheses and discuss them in qualitative terms in Sect. 6 and summarize in Sect. 7. We conclude in Sect. 8 with some implications for the nature of choice making, face preferences, and the relation between pre-verbal and verbal choice investment.

2 Phenomenology of Experience and Language

Phenomenology focuses both on *what* is given in experience and on *how* this takes place, aiming to describe this in as much detail as possible (Sokolowski 2000; Zahavi 2003). The "what" of consciousness, in the broadest sense of the term, is the *intentional object*, again understanding this to be any phenomenon given to consciousness, such as the two faces represented in photographs shown in Fig. 1. The "how" of experience has many aspects, one of which is sometimes referred to as "quality" (e.g., Husserl 1900; Zahavi 2003),

but as this term is much too general, we may refer to it as *intentionality type*. Perceiving is one of the most basic kinds of intentionality, but there is also remembering, anticipating, imagining, dreaming, judging, and many others. Another aspect of the "how" is what has been called "intentional matter" (e.g., Zahavi 2003), but also goes under terms such as "aspectual shape" (Searle 1992), and "construal" (Zlatev 2016). The common point is that the intentional object is never intended neutrally, but under one or more *dimensions*.[2] To give a salient example, *valence* is a dimension in which "an object appears to be attractive or repulsive before it appears to be black or blue, circular or square" (Koffka 1928, p. 319). This dimension is particularly important, since it affects the most basic, *operative* level of intentionality which is based on pre-reflective bodily activity, and which influences how higher levels of intentionality, including perceptual, intersubjective, signitive (i.e., sign-based), and linguistic will manifest themselves (Merleau-Ponty 1962; Sokolowski 2000; Zlatev 2018).

To redirect experience back to the "how" of experience is known as the *phenomenological reduction*. This is a difficult process aiming to focus on *lived* experience as such. Using the metaphor proposed by Petitmengin and Bitbol (2009, p. 378), this is not like "switching the light to see what the room looks like, it's rather exploring it in the dark, by feel, a little as a blind person would do. It's not a matter of looking at one's experience, but of tasting it, or dwelling in it". From this pre-reflective, lived layer of experience, the phenomenological reduction gradually brings about a reflective layer, and in order to make this intersubjective it also leads to a verbal description of this layer. On the one hand, this implies that all verbal accounts we provide are never truly identical to the pre-reflective experiences themselves since "all recollections, descriptions, reflections, etc. are already transformations of those experiences" (van Manen 2014, p. 313). On the other hand, providing an account, or *logos* of our experience is what phenomenology is all about. Notably, the validity of phenomenological descriptions cannot be measured in terms of representative accurateness, but rather in terms of *authenticity*, becoming aware of different experiential dimensions and describing them with language that is *felt* to be truthful by the subject him or herself (Sokolowski 2000; Petitmengin and Bitbol 2009).

Of course, such a conception of language as a verbalization of experience is very distant from those of Chomskyan "generative linguistics", or from formal semantic analyses focusing on "truth-functions" based on mappings between sentences and "states of affairs" in reality, or "models" of these. But while the major phenomenologists were not preoccupied with language, such an experiential take on language is reflected in the first of Husserl's *Logical Investigations* (Bundgaard 2010), and has been "rediscovered" both in some recent schools of phenomenology (Sages and Lundsten 2009; Mörnerud 2016), and in some parts of *cognitive linguistics* (Langacker 1987, 2006; Zlatev 2010).

There is considerable, though largely implicit overlap between Langackarian semantic analyses and those of phenomenology (Möttonen 2016). For example, a central claim is that language, like pre-verbal experience, is characterized by a number of *dimensions of construal*. One of these is *specificity*: how much information is presented about the intentional object, or the "profile". As illustrated in (1), there is an increase in specificity in the description of Mona Lisa, as more and more attributes are being added:

(1) the woman < the sitting woman < the sitting woman with folded arms < the sitting woman with folded arms that is smiling < the sitting women with folded arms that is smiling enigmatically

Another dimension is *perspective,* which has to do with the degree to which the speaker is explicitly represented in the utterance or not. In the first instruction in (2) this is the case, but not in the second. We may characterize the perspective in the first case as one that displays *ego focus*, and in the last one having *object focus*.

(2) Sit on the opposite side from me. / Sit on the other side

While dimensions of linguistic construal like this are important for showing the continuity between pre-verbal experience and language, it is equally important to remember the differences between them (e.g., Blomberg and Zlatev 2014). Purely experiential construals of the intentional object cannot be determinative of linguistic meaning since language always takes place in one communicative situation or another (even if only in "communication with oneself", verbal thinking). For example, one's choice of which expression to use in (2) will be a pragmatic, communicative process, supervening on the experiences of individual speakers and hearers (Möttonen 2016). Construal is further subject to *sedimentation*, the process where, over historical time, through numerous individual acts of meaning-making, relatively stable intersubjectively shared structures emerge. As argued by Zlatev (2016), linguistic meanings (senses) can thus be understood as "conventionalized, socially shared construals of their intended referential objects" (ibid: 563). In sum, construal operations in non-signitive and signitive intentional acts are related but distinct (Zlatev and Möttönen

[2] The idea that intentional objects are given in (human) experience in particular ways has a long history in Western philosophy, but was developed in a novel and systematic way by Husserl and later phenomenologists by focusing on the relations between parts and wholes, between objects, sides and perspectives, and especially on the dynamic interplay of presence and absence (Sokolowski 2000).

2022). A further essential dimension, mentioned in Sect. 1, is that of *dialogicality* (Linell 2009): the degree to which language involves overt interaction of speaker or hearer, or is relatively one-sided or "monological".

More or less (in)direct correspondences between experience and language have been made by others, including Gendlin (1962) with respect to the so-called *experiencing scale* in psychotherapy. If the manner of the client's descriptions is high on this scale, a person can be seen as attending to the bodily felt sense of some situation and allowing words (and gestures) to emerge directly from that sense, as in (3). A description in the middle of the scale has more descriptive statements and narrations, with emotions briefly referred without internal elaboration, as in (4). Lowest on the scale were considered descriptions full of references to external events, expressed in a flat and self-evident manner, as in (5).

(3) It's almost like … it kind of feels like, sitting here looking through a photo album. And, like each picture of me in there is one of my achievements. It's like it feels right to me to say … that … I don't know quite how to say it … It's like the feeling is there, but l can't quite put words on it.

(4) We spent about two hours talking about his problem. I was very much disturbed by what he said because this was a very serious conversation, and it dealt with a decision he had to make regarding his work and his marriage.

(5) It was too late. She went into a coma, she lasted for about three or four months. We didn't know it had gone all the way back. There was no sign of it, nothing. (Hendricks 2009, pp. 132–133)

Interestingly, Gendlin and his colleagues established in a series of studies (Hendricks 2002, 2009; Goldman 2005) that the higher on the experiencing scale a clients' verbal descriptions were, the more likely it was for the therapy to have a positive outcome. In our terms, we could say that clients who expressed themselves higher on the experiencing scale were more invested in the therapy situation.

3 Language and Experience in Choice Making

In a study that questioned the assumptions that "we suffer from the most extreme form of inaccessibility to cognitive processes—literal lack of awareness that a process of any kind is occurring until the moment that the results appear" (Nisbett and Wilson 1977, p. 241), Mouratidou (2020) asked 43 Greek participants to choose from 20 pairs of photographs of human faces (male and female) the ones they found "most attractive", and from 20 pairs of abstract figures the ones they found most "aesthetically pleasing" (see Fig. 2). All verbal interactions took place in Greek, the native language of the first author, who also was the experiment leader in the study.

After that the participants were asked to confirm whether a face or figure was the one they had chosen. Finally, they were asked to justify their choice. These verbal responses often consisted of two parts: (A) a response comment to the presented picture, and (B) a justification motivating the picture as their choice, as illustrated in example (6).

(6) Did I choose this one? (A) Maybe because she is kind of smiling (B)

Without the participants' knowledge, four face trials and four abstract figure trials were manipulated by deliberately asking participants to justify their non-preferred choice (see Fig. 1D). These manipulated trials were formed by picking one picture card of each category created after the memory step: (a) Remembered as chosen; (b) Remembered as non-chosen; (c) Misremembered as chosen; and (d) Misremembered as non-chosen. The responses to the manipulated trials were categorized according to the type of detection and type of response, as shown in Table 1.

The figures in Table 1 show that approximately half of the responses to manipulated choices were either clearly or possibly detected. For the responses belonging to the "Clear detection" class, 75% were Remembered, and 25% Misremembered; for those to the "Possible detection", the rate was fairly equal for both Remembered (58%) and Misremembered (48%) choices, while for "No detection" these percentages were 37% and 63%, respectively.[3]

For the purpose of the present study, we examined a comparable number of verbal responses produced for *actual choices* (4 for faces, and 4 for figures per participant) and categorized them by the same criteria as those in Table 1, but in "mirror" form. For example, "Denial" implies rejecting the original choice, and expressing preference for the alternative in the final step of the procedure.

As can be seen from the right-most columns in Tables 1 and 2, the patterns were completely different. In the case of the responses given for the manipulated choices, it was equally frequent for participants to deny the manipulated choice, thereby detecting the manipulation, as it was for them to accept it as their choice. In contrast, in the responses given for the actual choices, very few participants (1%) denied their choice, and the vast majority (87%) motivated their choices confidently. The other types of responses (coded as "Uncertain", "Ignorant", and "Indifferent") were also much fewer when participants motivated their actual choices than the manipulated ones.

[3] Further, the study showed that the detection of manipulation for choices for faces was higher (64%) than for figures (43%), and even more so, when those choices were Remembered (48%) than Misremembered (32%).

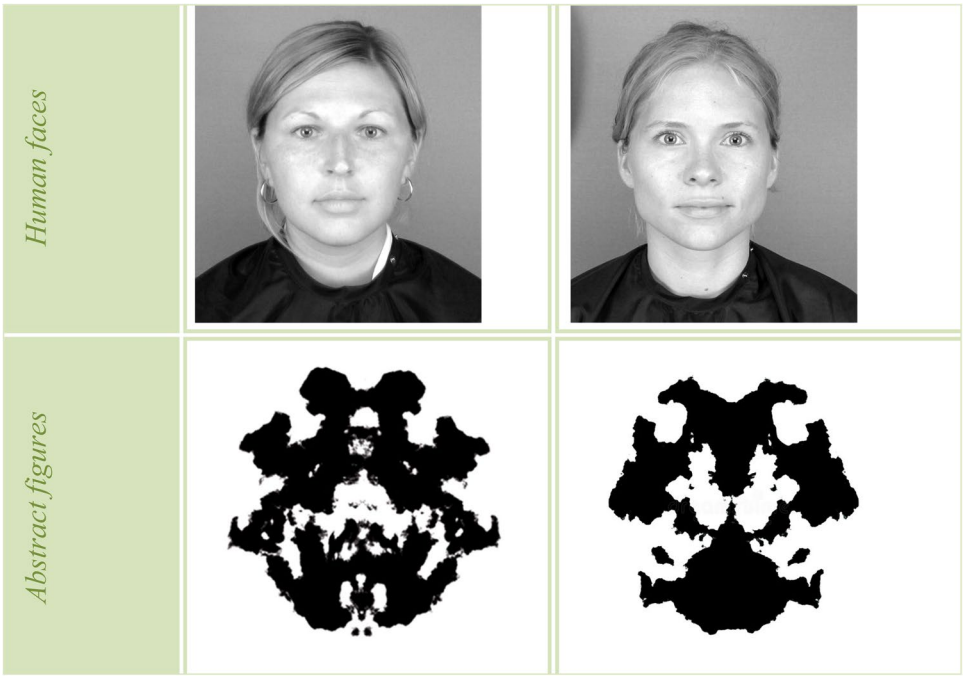

Fig. 2 Sample of pairs of items to choose from for each kind of two conditions in the study of Mouratidou (2020)

Table 1 Participants' verbal response types for manipulated trials (manipulated choices (MC) and actual choices (AC))

Category	Type of response	Response pattern	Distribution
Clear detection	Denial	Reject MC and motivate the choice of the AC Question, reject MC and justify the choice of the AC	107 (34%)
Possible detection	Uncertainty	Question MC and motivate preference for AC Question MC and motivate MC Do not motivate MC and state preference for AC Motivate MC and state preference for AC	46 (15%)
No detection	Ignorance	Cannot motivate MC Cannot motivate MC spontaneously, only reluctantly	29 (9%)
	Indifference	Motivate both in similar ways	25 (8%)
	Acceptance	Motivate MC confidently	109 (34%)
Total *N*			316

These results may seem unsurprising or even commonsensical, but they are far from trivial as they contradict the strongest claims made by proponents of "choice blindness", according to whom all justifications are post-hoc rationalizations (Johansson et al. 2008, p. 20). However, the results of Mouratidou (2020) show that there is a considerable difference between participants' response patterns to actual and manipulated trials. Such findings can be seen as testaments to the correspondence between pre-verbal experience and verbal expression, and thus the reliability of first-person descriptions.

The relationship between pre-verbal choice making and verbal justification, however, is not always straightforward. For example, when participants were asked to justify their choices in the original encounter (B in Fig. 1) in what in effect is *a new choice situation* (D in Fig. 1), it is reasonable to expect that they had more conflicting experiences

Table 2 Participants' verbal response types for actual choices (AC)

Type of response	Response pattern	Distribution
Denial	Reject AC and shift to alternative	3 (1%)
Uncertainty	Question AC and motivate it Question AC and shift preference to alternative Question AC and either (clearly) motivate any of the two or not	24 (7%)
Ignorance	Cannot motivate AC Cannot motivate AC spontaneously, only reluctantly	5 (2%)
Indifference	Motivate both in similar ways	9 (3%)
Acceptance	Motivate AC confidently	286 (87%)
Total N		327

in the case where their original choice was manipulated (Table 1), than when this was not the case (Table 2). Thus, somewhat paradoxically, we can expect participants to be more invested in the situation when having to explain their choice when it was manipulated than when it was not. And within the category of manipulated trials, there should be more verbal markers of choice investment in the cases where manipulations were detected than when they were not detected. Thus, albeit indirectly, the language used in verbal responses when asked to justify choices can be expected to reflect the (degree of) investment in the making of the corresponding choices. Following this reasoning, we returned to the data from Mouratidou (2020), and analysed the verbal responses to be able to test the general hypotheses presented at the end of Sect. 1.

Concerning H1, the initial choice manipulation experiment involved choices concerning different perceptual objects and task instructions (i.e., the formulations of the choices to be made: "Who of these do you find more attractive?" and "Which figure do you find more aesthetically pleasing?"). The particular selection of objects was motivated by their different status in terms of *affectivity*, with faces expected to be more affect-arousing than abstract figures. These differences can be expected to impact on participants' cognitive and affective predispositions (e.g., Bartlett 1932) and, thus, on their differential investment during the choice making. This assumption was also supported by the results of the initial study (Mouratidou 2020), where it was found that choices for faces were more memorable, and their manipulations more detectable (see footnote 3). Thus, it is reasonable to assume that the degree of choice investment manifested in participants' verbal motivations will differ for faces and figures. The motivations for the other two hypotheses were given above.

4 Methodology

One of the methodological principles of cognitive semiotics is the *conceptual-empirical loop* (Zlatev 2015; Stampoulidis et al. 2019; Devylder and Zlatev 2020), which implies cross-fertilization between philosophical "what" and empirical "how" questions. Investigations begin not with "prior theories", but rather with meticulous reflection on the phenomenon, in general, and with various concrete manifestations of it in everyday life or in experimental settings, in particular. After a number of iterations of the loop, theoretical constructs are formulated, and further operationalized as appropriate for the empirical study in question. Experimental hypotheses may be stated and explanatory theories proposed, but only in subsequent steps. The ambition is in this way to obtain high degrees of *translation validity* (see Sect. 1), where theoretical constructs and their operationalizations remain true to the original phenomena, and even serve to elucidate them further. Thus, in the spirit of all phenomenology-based research, "under this rendering, method is not an algorithmic procedure to be followed mechanically of useful results are to be achieved; rather, a method is a way or path toward understanding that is as sensitive to its phenomenon as to its own orderly and self-correcting aspects" (Pollio et al. 1997, p. 28).

Using such an approach, we operationalized verbal choice investment in the following way. Starting from the conceptual side, we formulated a number of dimensions of construal in a way that was as intuitive as possible (see Sect. 2) and further adapted them to fit the situation at hand, resulting in a number of *categories.* Then, we tested their applications to the verbal responses of the participants, and adapted them further to be able to more accurately capture all relevant aspects. This was done in several iterations before settling on eleven categories. We grouped these categories further into three structural layers: *Ground, Frame,* and *Veneer* to indicate logical relations of the categories both within and between layers.

The layer Ground is presupposed by the other two layers and comprises the categories of *Interaction*, *Justification, Prominence* and *Preference* (see Table 3). Once again, there was a logical order between these categories. Interaction, which could be either *dialogical* or *monological,* between the experimenter and participant is a precondition for the response to be elicited. A given response could include a justification for the choice ("yes"), not include a justification ("no"), or else it could not be determined.[4] However, once a justification is provided, then prominence has to be given to the *target*, the *alternative,* or both (when they are assessed in comparison), implying that, inevitably, one of the two would be stated as the preferred one, as in (7).[5] Thus, these four categories indicate the justification formation and serve as a basis for determining the remaining layers and categories.

(7) I liked neither, he just seemed to me…I don't know, slightly better.
Equal prominence on Target and Alternative — Preference on Target

The layer Frame consists of the categories *Intentionality type, Time, Perspective,* and *Reference* (see Table 4). These categories are essential parts of the justification. First, the

[4] *Nil* was used to indicate "no value", in cases where one could not be assigned since the response was vague or self-contradictory in the given respect.

[5] All examples are English translations of original Greek responses.

Table 3 *Ground* categories and values of verbal choice investment, with corresponding operational criteria and examples in English

Category	Value	Criterion	Example
Interaction	Dialogical	Explicit or implicit references of the participant addressing the experimenter	*He looks nerdy,* ***doesn't he****?* *It was better. I hope this helps* ***you***
	Monological	Monological responses without references to the experimenter	*I like her face more*
Justification	Yes	The participant motivates one of the pictures as her choice	*She looks kind*
	No	The participant does not motivate any of the pictures as her choice or treats it as a random or forced choice	*Just because* *I don't know why* *Because I had to choose one of them*
	NIL	The participant provides a vague, unclear, or self-contradictory justification	*For the same reason* *I liked it more. Wait, no, I've made a mistake choosing it*
Prominence	Target	The focus of the justification is placed on the target picture	*I liked* ***him***
	Alternative	The focus of the justification is placed on the alternative picture	*I didn't like* ***the other one***
Preference	Yes	Explicit or implicit remarks that indicate preference for one of the pictures	*Because it seems a bit clearer*
	No	Explicit or implicit remarks that indicate dis-preference for one of the pictures	*It's abstract, while the other one makes sense to me*

chosen item will need to be described as intended in terms of one or more of the intentionality types: *perception*, *imagination, remembering,* and *affection. Time* concerns whether the item is described as being in the *past, present,* or *both*, as expressed by linguistic tense or adverbials, as shown in (8).

(8) There *is* a face here and I *didn't like* it

As shown in Sect. 2, every verbal expression implies a certain *Perspective*: with *ego* focus, when the intentional agent is highlighted, and *object* focus, when the focus is on the picture as the object of perception; or *both*, when ego and object are combined. Finally, the justification could be more or less *personal*: when the participant used individualized *Reference*, revealing some specific feature of the intentional object, or when those were lacking. As pointed out above, we grouped these categories under Frame, since they are essential ingredients of choice justifications that need to be expressed in one way or another.

Finally, Veneer consists of the categories *Specificity, Valence* and *Modality*, all of which include an evaluative element (see Table 5). Thus, a justification would be coded as *detailed,* when including remarks about (one or more) features (e.g., a facial characteristic) or *generic,* when the assumed reasons are holistic characterizations, designating a general impression of what the picture depicts (such as, "slightly better" mentioned in (7)). It could be evaluated as *positive* or *negative*, and could reflect different levels of certainty: *certain,* when the intentional agent is explicitly emphatic about the choice; *possible*, when the picture is evaluated as a potential choice; or *uncertain,* when the agent appears unsure. When the respective values were lacking within the three categories, it was coded as *neutral*. The latter indicates that these categories are not essential components of the verbal choice justification, since a choice can be motivated without containing anything but "neutral" values for any of them, and this motivated grouping and labelling them as Veneer. At the same time, these categories can be considered quite indicative of choice investment given their explicitly evaluative character.

On the basis of the conceptual and empirical considerations, and the linguistic manifestations of experiential choice investment just described (Tables 3–5), we formulated the operationalization of verbal choice investment in terms of the set of *markers of choice investment* (MCI) shown in Table 6. The more markers that are present in the responses of participants, the greater the verbal choice investment. This could be seen as the final layer of the process of operationalization, and step within the conceptual-empirical loop, exemplifying the relationship from the phenomenon in focus and corresponding concepts to its operational definition.

On this basis, we could operationalize the hypotheses presented at the end of Sect. 1 as follows. The degree of verbal choice investment will be greater:

- For choices concerning faces than for figures (H1)
- For manipulated than for actual choices (H2)
- For detected than for non-detected manipulations (H3)

Table 4 *Frame* categories and values of verbal choice investment, with corresponding operational criteria and examples in English

Category	Value	Criterion	Example
Intentionality type	Perception	Judgements, impressions, and descriptions of the picture	*He seemed troubled* *She looks like a housewife* *Better than her*
	Imagination	Hypothetical and imagined scenarios in both past and future	*He might (…) build us a spaceship* *She was a nerd in school* *I could be friends with him*
	Remembering	Backward references where the picture is intended as familiar or known	*He reminds me of Johnny Depp* *It made me think of a pair of headphones I once had*
	Affection	Affective response	*I like him*
	NIL	The justification includes a reference for the alternative picture, but without a further elaboration	*In comparison to this one*
Time	Past	References indicating that the justification was determined in the past. *Choose* was regarded as an integral element of the response answering the questions "why did you choose this one?" and was not coded	*I **liked** him* *I **thought** he is nice* *He **had** an odd nose*
	Present	References indicating that the justification of the picture is determined in the present as an ongoing choice making process	*He **seems** nice to me* *Because **she's smiling***
	Both	References which combine both past and present time	*There **is** a face here and I **didn't** like it*
	NIL	Not indicated because a verb or a time adverb is lacking	*Nicer than the other*
Perspective	Ego focus	The focus of the justification is placed on the participant perceiving the picture	***I** don't like his style* *He looks nice to **me***
	Object focus	The focus of the justification is placed on the picture as the object of perception	***This girl** is more attractive*
	Both	The focus of the justification is placed on both the participant as the perceiver and the picture as the object of perception	***I** like him. **He** is nice*
	NIL	The justification includes a reference for the alternative picture, but without any further elaboration	*In comparison to that one*
Reference	Personal	Explicit individualized remarks revealing something specific about the participant's selfhood (e.g., age, body, ethnicity, past history, etc.)	*He reminds me of **an ex*** *She looks like Megan Markle and this girl seems very nice to me* *Because he is in **my age***
	Impersonal	Lack of explicit individualised remarks	*I like her because she is smiling* *He looks like Johnny Depp*
	NIL	The justification includes a reference for the alternative picture, but without any further elaboration	*In comparison to that one*

5 Results

In this section we attest to what extent each of the three hypotheses, as operationalized above, are supported by the material. We present each of them following the logical order of the three structural layers (i.e., Ground, Frame, and Veneer), using only descriptive statistics since the central thrust of the analysis remains *qualitative*: to show patterns that can be made intuitive, and interpreted in a way that makes sense both for ourselves and the reader. For consistency, we defined a given MCI (see Table 6) to be present when the difference to the alternative was greater than 5%, but once again, we emphasise that there is no "objective" justification for this, only the need to provide clarity and a basis for further interpretation. In the spirit of qualitative research, the basic aim is for "a reader, adopting the same viewpoint as articulated by the researcher, can also see what the researcher saw, whether or not he agrees with it" (Giorgi 1975, p. 53). A summary of the outcome of the three hypotheses is presented in Sect. 6 and a discussion in Sect. 7.

5.1 Investment in Choices Concerning Faces vs. Figures (H1)

As shown in Fig. 3, within the Ground layer the marker of Interaction was slightly more often dialogical for faces (28%) than for figures (24%), albeit the difference between

Table 5 *Veneer* categories and values of verbal manifestations of choice investment, with corresponding operational criteria and examples in English

Category	Value	Criterion	Example
Specificity (perceptual attributes)	Detailed	Remarks indicating one or more specific characteristics depicted in the picture; sometimes combining them with an impression	*His **eyes*** *His **eyes seemed kinder** to me*
	Generic	Holistic characterizations indicating a general impression of the picture	*I liked him because **he's cute***
	Neutral	Lack of detailed or generic characterizations	*I liked her more*
Valence	Positive	Explicit remarks of positive value and positive characteristics, attributes, and descriptions	***I liked** him* *He is **nice*** *She seems **smart***
	Negative	Explicit remarks of negative value and negative characteristics, attributes, and descriptions	*He **scares** me* *He looks **boring*** *He looks at me **ironically***
	Neutral	Lack of explicit remarks of either positive or negative value	*It's **her hair***
Modality	Certain	Emphatic remarks and adverbs of affirmation or negation of the picture, such as "definitely, never, for sure," etc	***No way**, he is ugly* ***I remember** choosing her because I liked her lips*
	Possible	Adverbs, modal verbs and verbs that indicate possibility, such as "perhaps, probably, suppose"	***Probably** because he is smiling* ***I guess** because of her gaze*
	Uncertain	Remarks that indicate uncertainty about the justification of the picture, such as "no idea, it beats me"	***I don't know** what I did, **I don't remember for sure**, **perhaps** because her arms are wide open*
	Neutral	Lack of remarks indicating certainty, possibility, or uncertainty	*She looks smart*

Table 6 Markers of choice investment (MCIs) and their explanations

MCI	Explanations
1. Greater dialogicality than monologicality	More experiential reactions, including more conflicting ones, and thus the need to share them
2. More expressed than absent justifications	More likely to justify somehow, rather than just "shrug"
3. More balanced target/alternative prominence: less difference between the two	Higher investment in the choice situation: both alternatives as possibilities for choice
4. More balanced preference: smaller difference between the two	Higher investment in the choice situation: both alternatives as possibilities for choice
5. More non-perceptual than perceptual intentionality	Not only speaking of the choices as directly present in perception, but also through other types of intentionality
6. More non-present than present time reference	Not only speaking of the choices as directly present in the here and now, but also as absent
7. More non-object than object perspective	Not only object focus, but a combination of ego and object focus
8. More personal than impersonal references	More personal associations
9. More detailed than generic and neutral specificity	More detailed references than generic and neutral
10. More non-neutral than neutral valence	More positive and negative remarks due to more experiential reactions for both choice alternatives
11. More non-neutral than neutral modality	More remarks indicating certainty, possibility, or uncertainty

them was less than 5%. The proportions for Justification were almost fully identical. However, Prominence was considerably more balanced between target and alternative for faces (54/46%) than figures (63/37%), and so was Preference, implying that participants were assessing both target and alternative picture as potential choices, possibly due to the differential affective status of the two kinds of perceptual objects.

Within the Frame layer, it was only the Reference marker that showed (somewhat) higher investment for faces than figures (5% difference), as predicted. On the other hand, the MCIs non-perceptual Intentionality, as well as non-present Time occurred more often for figures than for faces (with 17% and 24%, respectively), contrary to H1. Finally, non-object Perspective was used almost equally for the two kinds of intentional objects.

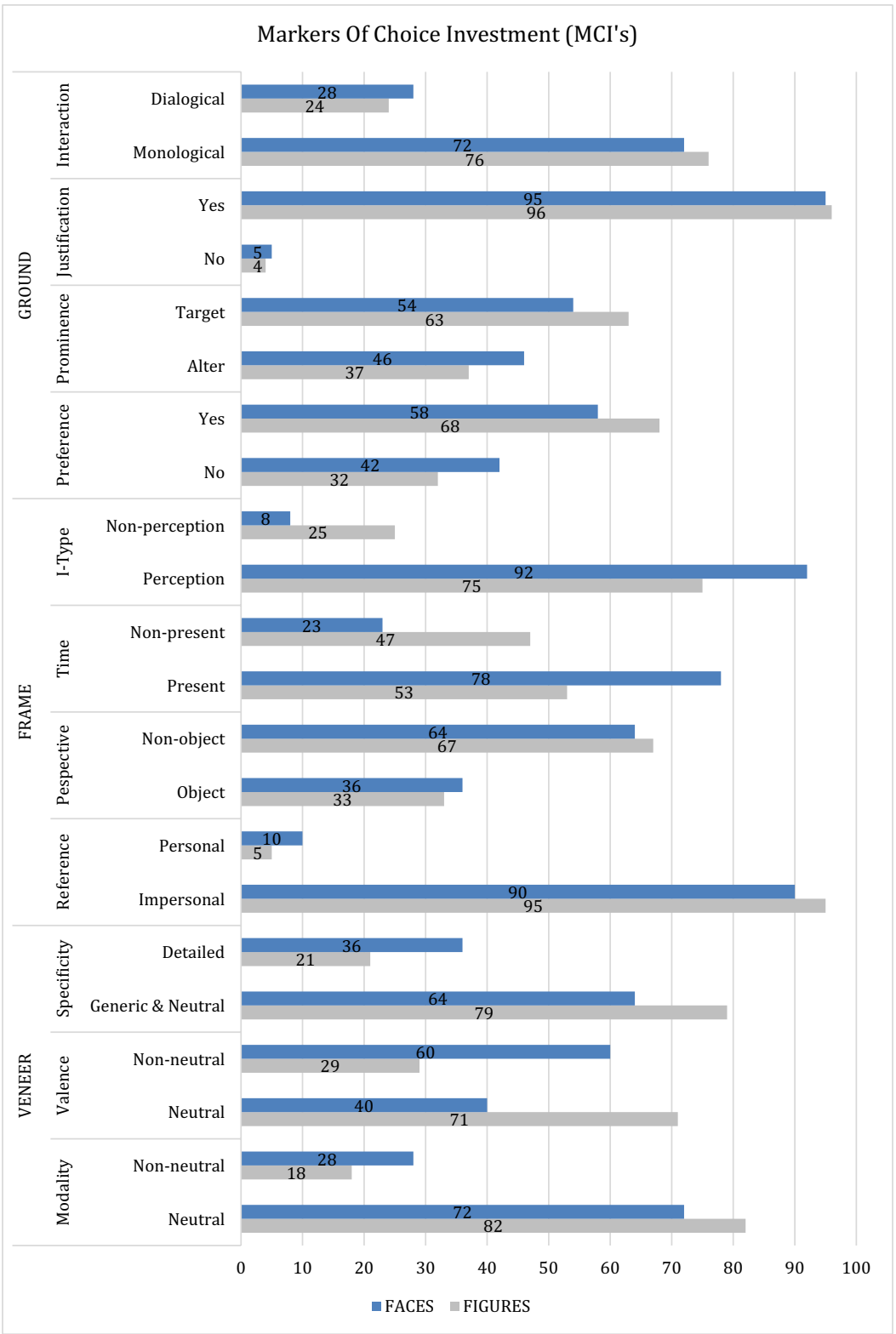

Fig. 3 MCIs of verbal manifestations for faces and figures

On the other hand, considering the Veneer layer, all the MCIs indicated higher investment for faces than figures: the justifications for faces were more detailed (15% difference), and had more non-neutral Valence (31% difference), while most occurrences were neutral for figures. Likewise, non-neutral occurrences indicating Modality were more for faces than figures (10% difference), as expected.

5.2 Investment in Choices Concerning Manipulated vs. Actual Choices (H2)

To remind, we predicted that when asked to justify their preference for an item that was not initially chosen, participants would in general be required to "work harder", and either imagine a situation in which they would make this preference, or else reason as to why they would maintain their original preference—a distinction that is the basis for H2. The results are shown in Fig. 4.

For the Ground layer, dialogical Interaction was much more common for the manipulated choices compared to the actual ones (25% difference) and Prominence was much more balanced between target and alternative picture for the manipulated choices (51/49%) than the actual (65/35%), as predicted. On other hand, Justifications for manipulated and actual choices were nearly identical, and Preference was nearly equally balanced between positive (yes) and negative (no) for both manipulated and actual choices.

For the Frame layer, non-object Perspective occurred more often for manipulated than for actual choices (10% difference), as expected. Non-present Time, contrarily to the prediction, occurred slightly more often for actual choices than manipulated (6% difference). There were no differences for Intentionality type and Reference between manipulated and actual choices.

Lastly, for the Veneer layer, for category Modality, non-neutral instances occurred much more for the manipulated choices (54% difference), as expected. For the other two categories there were no difference.

5.3 Investment in Choices Concerning Detected vs. Non-detected (H3)

Among the manipulated choices, the prediction was that there would be more markers of choice investment (MCIs) in the case of detected than non-detected manipulations, the reasoning being that the latter case would provide most conflicting experiences, requiring most effort from the participants.

Starting from the Ground layer again (see Fig. 5), Interaction was much more often dialogical for the detected manipulations (39% difference), as expected. Similarly, while for all detected manipulations (100%) there were justifications, in 8% of non-detected manipulations this was not the case, presumably because participants were unable to provide a justification that would not be experienced as a self-contradiction. Further, Prominence and Preference were much more balanced for detected than for non-detected manipulations.

Within the Frame layer, non-object Perspective justifications occurred more often for the detected manipulations (17% difference), as expected. Contrary to the predictions, non-present Time was almost twice as common for the non-detected manipulations (17% difference) and Reference was more often personal for the non-detected than the detected manipulations (6% difference). There were only minor differences for Intentionality type.

Finally, for the Veneer layer, the hypothesis was supported for Valence, given that there were more non-neutral occurrences when justifying detected choices than non-detected (8% difference) and for Modality, where the non-neutral justifications predominated for detected manipulations (14% difference). There were no differences for Specificity.

6 Summary

Table 7 summarises the quantitative results for each of the three hypotheses, in terms of the MCIs, our operationalizations of verbal choice investment, in terms of three logical possibilities:

a. cases where the maker was aligned with the respective hypothesis (A)
b. cases it was misaligned (MA), in the sense that it was stronger for the opposite kind of choice than then one predicted, and
c. neutral (−), where there was no difference between the two kinds of choices, i.e., less than 5% difference.

Given than for all three hypotheses the number of aligned markers clearly dominated over the misaligned: 6–2 (H1), 4–1 (H2) and 7–2 (H3), all three can be considered supported. But we need to immediately acknowledge that this support is conditional on the operationalizations used, and the choice to disregard the neutral markers. With this reservation, what generalizations can we make? First it is notable that balanced Prominence and non-neutral Modality were the two MCIs that were aligned for all three hypotheses. Dialogical Interaction, balanced Preference, non-object Perspective, and non-neutral Valence were supported for two of the three hypotheses, while personal Reference and detailed Specificity found support in one of the hypotheses. Finally, the MCI based on non-present Time did not find support in any of the hypotheses. As we discuss below, this suggests

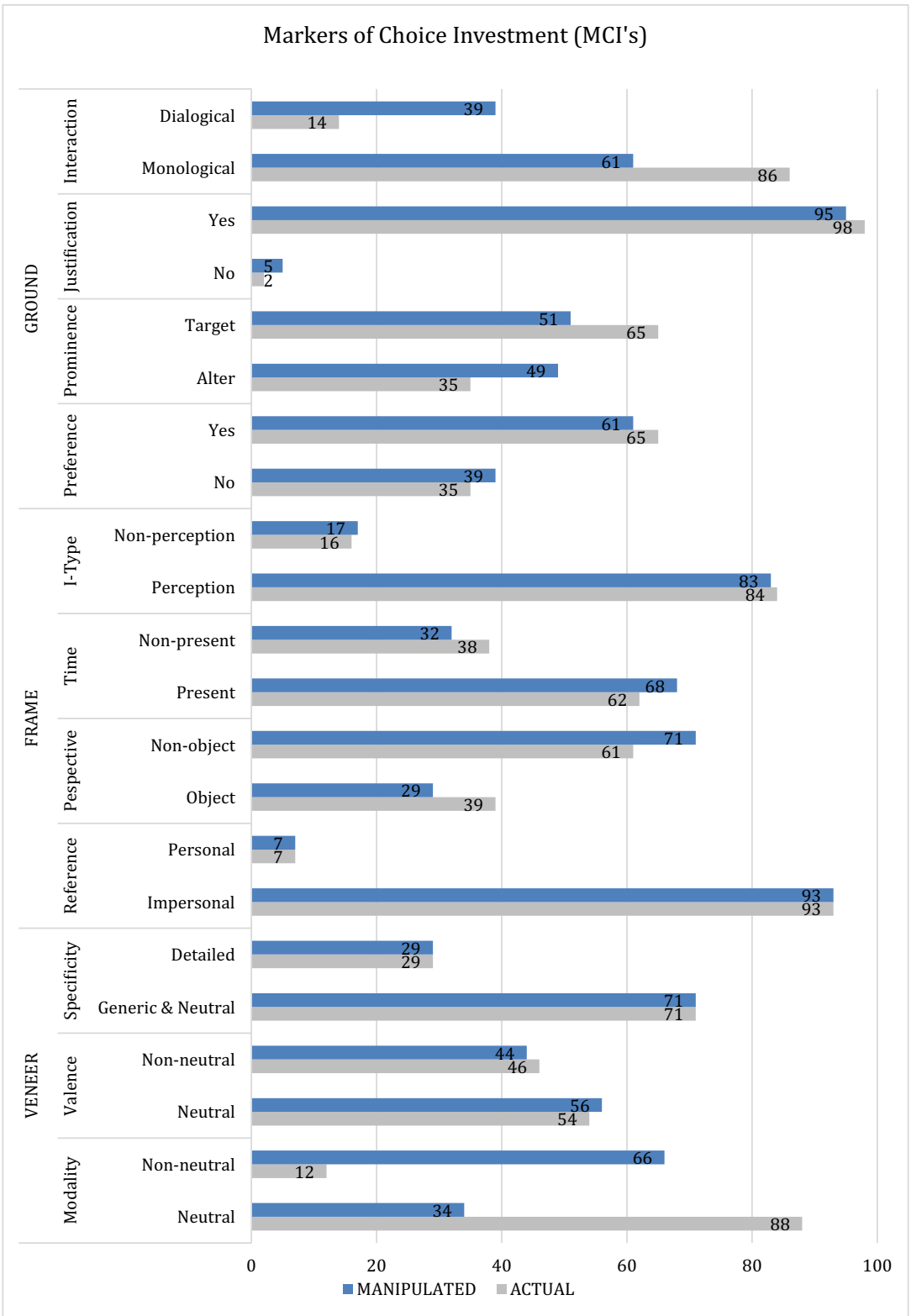

Fig. 4 MCI of verbal manifestations for manipulated and actual choices

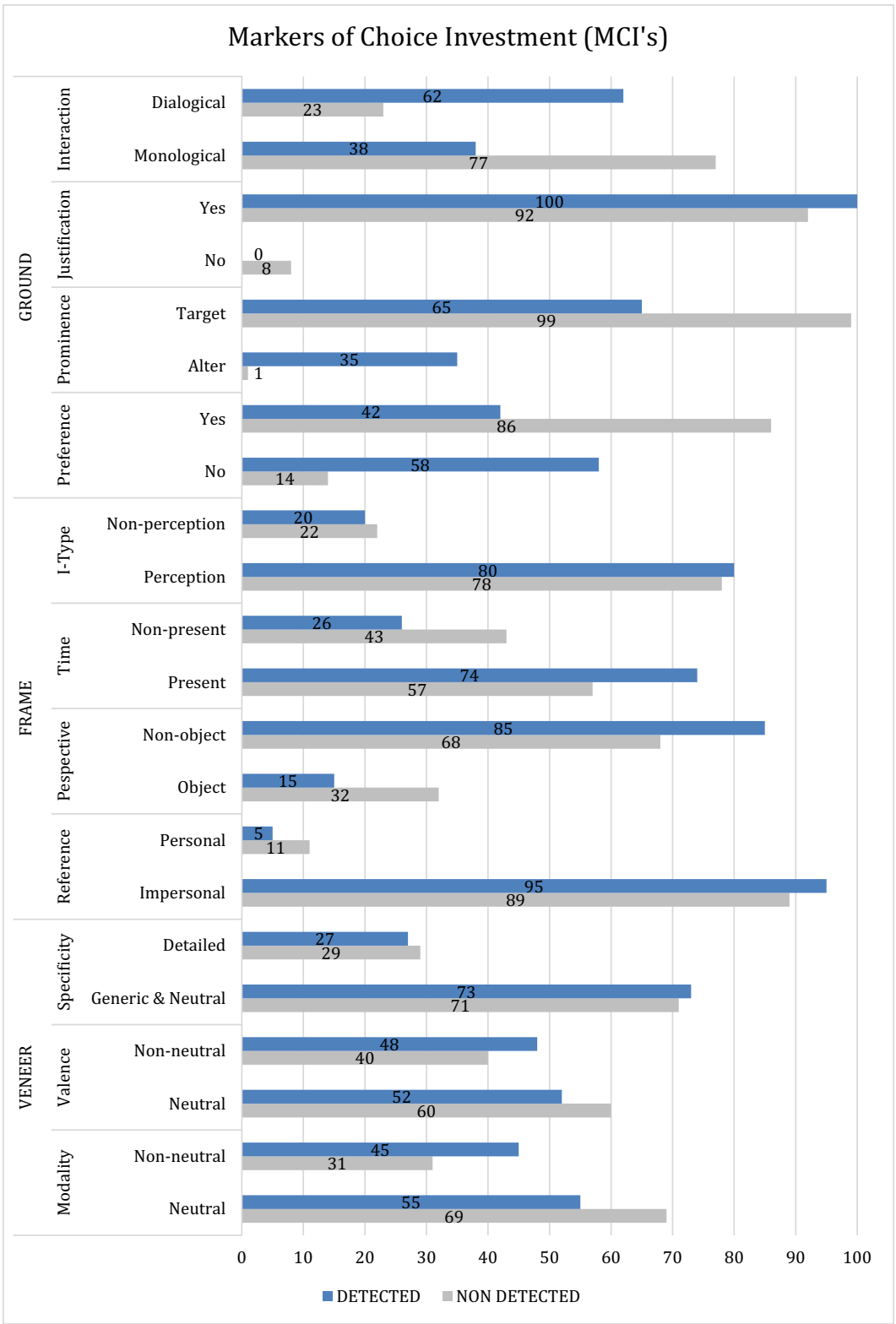

Fig. 5 MCIs of verbal manifestations for detected and non-detected manipulations

Table 7 Summary of MCIs across H1–H3 (A = aligned, MA = misaligned, – = neutral)

	MCI	H1	H2	H3
Ground	Dialogical interaction	–	A	A
	More justification	–	–	A
	Balanced prominence	A	A	A
	Balanced preference	A	–	A
Frame	Non-perceptual I-type	MA	–	–
	Non-present time	MA	MA	MA
	Non-object perspective	–	A	A
	Personal reference	A	–	MA
Veneer	Detailed specificity	A	–	–
	Non-neutral valence	A	–	A
	Non-neutral modality	A	A	A

that we need to reconsider the significance of Time reference as a marker of verbal choice investment.

Further, by looking at the occurrence of MCIs within the different layers, it can be observed that most aligned MCIs occurred for the Ground and Veneer layers, while all the misaligned ones occurred exclusively for the Frame layer. We discuss this and other possible generalizations in the following section.

7 Discussion

Cognitive semiotics employs not only the methodological principle of the conceptual-empirical loop, but also, that of pheno-methodological triangulation (Pielli and Zlatev 2020). This implies that it endorses the use of detached observation, quantification, and testable predictions, as in experimental psychology and cognitive science, as applied in the previous section. But cognitive semiotics emphasizes that such *third-person* methods are never sufficient on their own but must be preceded by, and complemented with, *first-person* methods such a phenomenological analysis, and *second-person* methods such as qualitative interaction analysis. The empirical findings reported in the previous section thus also require a qualitative interpretation of the findings, where we consider how the three choice situations, as well as the three layers of choice investment categories (Ground, Frame, Veneer) differ from one another. In other words, in this section we move back from the operationalizations to the phenomena themselves, assessing the translation validity of the study.

The first hypothesis concerned differences in choice investment between faces and figures, grounded in the differential affective status of the two kinds of perceptual objects. Many studies have attested that faces are a special kind of "stimuli" when it comes to perception, recognition and memory (e.g., Schupp et al. 2004; Kanwisher and Galit 2006; Tsao and Livingstone 2008; Öhman 2009) and this appears from the first days of life (e.g., Valenza et al. 1996). Thus, it can be safely assumed that the face items in the study were more affectively charged than the abstract figures. However, does this imply that participants are always more invested in choices concerning the former rather than the latter? The nature of the figures made their assessment more *effortful*, but this itself provoked particular manifestations of verbal investment. For example, participants had the tendency to "see into" the figures animate creatures (e.g., human and non-human animals) and use such interpretations in their justifications of their choices, as exemplified in (9–10).

(9) Because, I don't know, it's like I see two women, two faces (…)

(10) This one because I like the symmetry more it reminds me of birds

As pointed out by Bartlett (1932, p. 44, emphasis in original), given that the "task factor is always present it is fitting to speak of every human cognitive reaction, perceiving, imagining, remembering, thinking, and reasoning, as an *effort after meaning*". This effort is also reflected in the fact than even in cases where participants identified the *same* pattern, they varied the reasons for choosing one over the other, again potentially indicating an easier way (i.e., stating the apparent) to deal with a more demanding perceptual object, as exemplified in (11–12).

(11) It reminded me of wheel tracks, of a car, that's why I liked it more (…)

(12) It was a clear wheel track and it reminded me of snow

Faces, on the other hand, were mostly assessed based on attractiveness, (assumed) personality attribution, and familiarity (13–15).

(13) He is prettier than the other one

(14) Because she's more like introverted, angry, serious

(15) He looks like my brother, that's why

The more effortful assessment of figures when compared to faces is the likely reason why the MCIs Intentionality type and Time (see Table 6) showed greater choice investment for the figures rather than the faces, against the hypothesis. Thus, we find here a potential discrepancy between pre-verbal and verbally expressed choice investment. To put it simply, when choices are easier, then the language used to justify these also tends to be simpler:

> The more a person is in contact with her experience, the more the vocabulary becomes simpler, direct, concrete…The absence of abstract categories, of psychological concepts, is an indicator that the subject is

> not describing theoretical knowledge but is absorbed in his experienced, in contact with it. (Petitmengin and Bitbol 2009, p. 386)

The discrepancy between pre-verbal and verbal choice investment was even more strongly reflected in the second hypothesis (i.e., expected higher investment in manipulated than actual choices), which can account for why there were fewer aligned markers of choice investment here than for the other two hypotheses. This is not surprising, as this was the most complex choice situation in the study, both from the standpoint of the participants, and for us to make sense of theoretically. In cases where the manipulated item was justified as the preferred one, there were at least two distinct possibilities. The first is that the intentional object was not made fully *intuitive* (in the sense of clearly experienced, see Sokolowski 2000) in the participants' mind (e.g., they were less interested in the task, more distracted, assessed the object as more indifferent). In such cases, we would in fact have predicted lower verbal investment as well. But there is also the possibility, well-attested in the material, where the participants saw this as a *new* choice making situation, one that is more demanding, given that it required more effort to (a) assess the presented alternative as a potential choice, (b) provide reasons that resonate with their experiential life and (c) communicate them to the experimenter. Such cases of exploring the "false alternative" as a new choice should not be seen automatically as sterile fabrications of assumed reasons from participants' side, but at least potentially as acts of authentic choice making, an "originality as a result of an active doing of the I, on the basis of something or other given passively beforehand" (Husserl 1977, p. 160). The complexity of this experience is what we proposed to be reflected in higher rates of verbal choice investment, even if the manipulations were *not* detected. But even more so when they were explicitly or implicitly detected, and the original choice needed to be re-confirmed.

This leads naturally to the third hypothesis, where most markers of choice investment were aligned with the predictions. Testing the difference between detected and non-detected choice manipulations was indeed one of the initial motivations for the present study: to investigate whether varying degrees of choice investment could be an explanatory factor for manipulation detection and choice awareness. The high occurrence of markers of choice investment (7 out of 11) in accordance with the hypothesis can be seen as confirming our initial expectation that choices that mattered more for participants were those that the manipulations were more often detected. Thus, the outcome of this exploration validates the assumption about the relationship between choice awareness and investment, rendering this as one of the strongest contributions of the present study to the discussion of the reliability of first-person verbal descriptions, our trustworthiness as agents, and choice making research in general.

Another contribution is the list of 11 categories, divided into three layers, and operationalized as markers of choice investment (see Table 6), and as a useful tool for future research. But we need to consider why the categories within Ground and Veneer layer appeared to be more revealing for choice investment than those within the Frame layer, with the exception of non-object Perspective. One reason was pointed out above: the markers of the Frame layer concerned more effortful choices, which were not necessarily those where pre-verbal investment was highest. For example, the fact that non-present Time occurred more for figures than faces, as well as for the non-detected than detected manipulations, could imply that participants had to go back or further ahead in time to discuss the presented choices as valid, drawing from past memories or projecting to imagined situations. Likewise, Intentionality type was misaligned for the faces vs. figures hypothesis, and neutral for the other two hypotheses, suggesting that participants had to muster more complex types of intentionality to assess less transparent, and thus more demanding choices.

A different and not incompatible reason is that the Ground and Veneer layers can be said to be more *intersubjective*, vis-à-vis the encounter of the participant with the experimenter. The question that the experimenter posed ("Why did you choose this one?") required not only a personal justification of the choice, but a statement of these motives for the sake of the interlocutor, here the experimenter. The categories within the Ground and Veneers layer pointing more explicitly at the recipient, than those of the Frame: greater dialogical Interaction, more balanced Preference and Prominence, more detailed Specificity, and non-neutral Valence and Modality could be seen as more explicitly targeted towards the addressee for whom the justification is conveyed, more adequately satisfying her question. On the other hand, the categories Intentionality type, Time, and Reference can be seen as more general, and less dependent on the social context of choice situation. Still, we would not wish to dichotomise, as we agree with Sokolowski (2008) that verbal construal occurs first and foremost between interlocutors: being guided by the need to say something to someone and the imperative to communicate it brings the particular aspects of the object into manifestation: "Logical form arises not only between the mind and the object but also between two (or more) people who articulate the object in common" (ibid, p. 59).

In sum, choice investment cannot be understood without acknowledging the specifics of the choice situation, including the *nature* of the action taken, its *purpose* and its projected *consequences* (Sokolowski 2008). The first two of these elements are particularly relevant for understanding

choice making and investment in contexts such as that of the present study. The first concerns the fulfilment of participants' roles in partaking in the experiment. The second overlaps with this but is more specific: making choices and providing justifications that are as veridical and authentic as possible. The consequential component is less relevant in experimental settings than in everyday life, but even here we can suppose that participants aimed to make and justify choices that would not produce disruptions of the social interaction underway. As Sokolowski (2008) points out, these elements are activated as intentions in agents' choice making, while at the same time intersecting with those of other agents. It is this complex network that can be seen as ultimately determining participants' investment in the choice making act.

8 Conclusion

Grounded in phenomenology, cognitive semiotics allows a systematic way of studying meaning making in general, and choice making in particular (e.g., Sonesson 2009; Zlatev 2015; Mouratidou 2020). It does this by allowing us to move away from the positivist methodological tradition and to focus on the subjective and intersubjective character of human experience, involving a web of interconnections between body, mind, others, and the world. A phenomenon such as choice cannot be regarded as adequately explored by employing only an "objective" third-person methodology, since "experience is the raw data of all empirical, scientific knowledge and it is our task as to understand experiences from the vantage point of the people who live them" (Whitehead 2017, p. 8). Thus, the cognitive semiotic tools of the conceptual-empirical loop and pheno-methodological triangulation were instrumental for the present study of choice investment.

We began with first-person intuitions about the mattering of choice-making in everyday life and experimental settings. Then we used second-person methods to elicit and interpret the verbal material, *as well as* testable predictions and descriptive statistics. In this process, we moved from insights and concepts developed in cognitive linguistics and phenomenology to the dataset, the empirical side of the loop, and back again, in multiple iterations. The operationalizations of verbal choice investment that we provided were essential for formulating and testing three independent hypotheses, all of which were to various degrees supported. As shown in Sect. 7, however, both when these hypotheses were supported and when this was not the case were important for shedding light on the phenomenon under study: *choice investment*, the mattering of a particular choice, both in pre-verbal experience, and as expressed in language to an interlocutor. Some of the categories and their corresponding "markers" of choice investment appeared to be better aligned with the complexity, and thus the effort involved in *verbalizing* a choice, than the pre-verbal experience of choice itself.

This leads us to conclude that choice making and choice investment are complex phenomena. On the one hand, our choices are driven by forces that are more or less implicit, affected by "passive" forms of intentionality (e.g., Ricoeur 1966; Merleau-Ponty 1968). On the other hand, our verbal reports provide information about our motives and declare us as agents to our interlocutors. When we talk about our choices, we not only justify a previous action (i.e., the choice made), but in fact perform a new action: choices that are in play at the particular moment, choosing to provide a justification or not, particular words and expressions, ways of intending the intentional object, etc. This double activity indicates that choice making, and, inevitably, choice investment, is anything but a static phenomenon, since all meaning-making/intentionality is fundamentally dynamic, as pointed out by the founding father of phenomenology:

> I perceive attentively, I "consider" something, I am directed in memory toward the past, I grasp it, I exercise a contemplating representation, I explicate the object, I determine it as substrate of the properties belonging to it, I relate it to other objects, compare and distinguish them, I evaluate it as beautiful and ugly, I imagine it different and more beautiful, I wish that it were different. I "can" shape it differently, will it changed, and actualize the difference […] The I is not a dead pole of identity. (Husserl 1977, p. 160)

Thus, the verbal justifications of choice making that we analysed in the study should not be seen so much as expressions of the initial, pre-verbal choice investment, but as manifestations of choice investment in the particular context, involving faces or figures, actual or manipulated choices. Ultimately, it is through the combination of pre-verbal and verbal experience that we are fully manifested as active agents (Sokolowski 2008).

Such conclusions differ radically from the physicalist approaches in cognitive science that we mentioned in the introduction (e.g., Dennett 1991, 1996; Bargh and Ferguson 2000; Libet 2005; Wegner 2006, 2018), according to which choice making is viewed as a rather static and predictable phenomenon, and choice makers as blind concerning the forces that drive them. For example, if experimental participants fail to identify their initial choice and explain it, then "[they] are manifestly wrong about themselves" (Johansson 2006, p. 39), the argument being that:

> if we know our own minds from the inside, we should know why we do what we do… and when we are asked to describe why we chose a face we

> in reality did not prefer, we are not supposed to just fabricate reasons. (Johansson et al. 2008, p. 20)

We hope that we have been able to show that this argument is problematic, not only due to its arrogance, but because it fails to acknowledge the many factors that guide our conduct, where experience is always more complicated and nuanced than what a single explanation can offer. "It is tempting", as Maslow (1966, pp. 15–16) famously puts it, "if the only tool you have is a hammer, to treat everything as if it were a nail" but if we want to *understand* a phenomenon, we should look at how things manifest themselves, using non-reductionist tools such as those of cognitive semiotics. This approach acknowledges that choice manipulation detection can be influenced by different factors and regards human beings as conscious agents with different degrees of choice awareness.

To conclude, our argument, based on previous and current empirical research combined with phenomenological insights, is that our choices arise in pre-verbal experience. But given that "no other human performance requires speech to the same extent as action" (Arendt 1958, p. 179), they are fully actualized in speech, and the dialogical encounter. Thus, it is legitimate to investigate this as reflecting choice investment: the degree to which we care about our choices. Further, and beyond the scope of the present article, are manifestations of choice making that go beyond language, into other semiotic systems such as gestures, postures, and facial expressions: the richness of bodily expression. This remains to be systematically studied in future choice making research.

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