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WHAT IS THE RELATION BETWEEN CONTENT AND REPRESENTATION?

Content and *representation* are two closely connected concepts that are of key importance in philosophy and the cognitive sciences. In this article, I show that, despite their importance, there is massive disagreement on how these concepts are related – a conflict that has gone largely unnoticed in the literature. In the first part of this essay, I present data on the use of the concepts *content* and *representation*: whereas one group of philosophers holds that representational content is content that is represented, others claim that representational content is content that represents. I then offer several possibilities to account for this tension in the second part by analyzing the concept *content*, but reject these explanations as false or inadequate. In the third part, I argue that the representation relation is used inconsistently because the concept *representation* is supposed to fulfill a double duty function. This can be seen most clearly by analyzing cases of misrepresentation. Additionally, I present some experimental data on the commonsense use of *representation* that supports my conclusion with respect to our inconsistencies regarding the use of these concepts. I conclude that without clarifying the two conceptions of representation, we cannot expect progress to be made in one of the most central areas of research in both philosophy and the cognitive sciences.

1. Spelling out the confusion

Thinking about the mind's ability to refer to objects and events in the world led to the identification and subsequent formulation of some intriguing puzzles. Certainly, some progress has been made – although critics may state with some justification that we still seem to be contemplating the same problems that already vexed Frege and Russell over a century ago. I will not discuss any of those problems in this paper. Instead, it is my intention to question whether the concepts with which these problems are formulated are coherently used. This is of utmost importance because mutual agree-

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ment on the meaning and use of those concepts is tantamount for communicating and discussing substantial issues about the mind-world relation.

Two concepts that have played an especially prominent role in theories of the mind-world relation are the concepts *content* and *representation*. The way these concepts are used in discussions in the philosophy of mind and the cognitive sciences seems to be largely equivalent to how we understand them in everyday discourse. We need to distinguish, of course, the content of a drinking glass from the content of a fairy tale. However, when we inquire about the content of a certain fairy tale, we seem to utilize the same notion of content that is in place when we discuss the contents of mental states. A similar story can be told when it comes to the concept of representation. When a person states that x represents y, we hold that x is about, stands in for, or means y; e. g., a white flag raised by a soldier represents (and hence is about, stands in for, means) surrender. Similarly, mental states have the power to represent (and hence be about, stand in for, mean) something else. Thus, when some x represents y, there is a relation between the one thing x that is doing the representing and another thing y that is represented.

$$x \xrightarrow[\text{represents}]{} y$$

As regards content and representation, one question immediately arises: how are these two fundamental concepts of the cognitive sciences related? More specifically, is it the case that content is thought of as doing the representing, i. e., *content* = *x*, or is content actually represented and hence *content* = *y*? Raising this question is justified by at least two considerations: (i) On the one hand, we have seen that the verb ›to represent‹ seems to be synonymous with the verb ›to mean‹. On the other hand, the concept of content is also often used synonymously with the concept of meaning, e. g., if a person inquires about the content of a certain Chinese sentence, that person could have equally inquired about the meaning of that sentence. Hence, the two notions seem to be very closely related. (ii) Philosophers often talk about representational content or the problem of representational content (Bickhard 1993) which again suggests a close connection between *content* and *representation*. However, reviewing the literature on *representational content* reveals that philosophers do not seem to consider it necessary to actually specify what they have in mind when they merge both terms but rather seem to take it for granted that the reader knows what the term ›representational content‹ means.

Given that most philosophers acknowledge a close connection between *representation* and *content*, there might be an easy and straightforward answer to the question I raised, i. e., maybe everybody accepts either that *content*

represents or that *content is represented.* Let us first assume that content C is the representing entity and hence represents something else, which we call y.

$$\text{content} \xrightarrow[\text{represents}]{} \text{y}$$

A survey of the literature shows that this connection is widely entertained. Here is a selection of statements that demonstrate this relation:

- »the manner in which conceptual content represents« (Bermudez & Macpherson 1998)
- »the way a given *content represents* it [the world] as being« (Brewer 2006, 173)
- »visual experiences have an intentional *content that represents* the world« (Martin 1992, 745)
- »*content represents* [...] external and mind-independent objects« (Schellenberg 2008, 58 n. 8)
- »if the world is different from the way that the *content represents* it to be« (Soteriou 2000, 173)

This selection of statements demonstrates that many philosophers seem to believe that content represents. Moreover, we can infer from these statements that those philosophers also hold that contents represent objects and properties of objects in the world. So can we cut this discussion short? Before we do so prematurely, let us investigate whether some people believe that content is represented.

$$\text{x} \xrightarrow[\text{represents}]{} \text{content}$$

And indeed, this option is at least as popular as the first. Let me again just present a few quotes from the philosophical literature.

- »what it is to phenomenally *represent a content* is to« (Chalmers 2004, 165)
- »the visual system *represents contents* of considerable complexity« (Hill 2005)
- »the experience *represents the content* as obtaining in the way« (Jackson 2007, 58)
- »a representational state that *represents the content*« (Lurz 2001, 316)
- »if a mental representation M *represents a content* C« (Prinz 2006, 441)

These scholars clearly take contents to be represented by some x where x is e. g., a visual system, a representational state or an experience. Also note, all those philosophers discuss the contents of mental states and the ability of the mind to represent. Thus, it does not look plausible to suggest that people apply these notions in different areas of research that have differing conventions.

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These data leave us with four possible solutions to respond to this tension between the two positions:

(a) It is wrong to claim that ›content represents‹.
(b) It is wrong to claim that ›content is represented‹.
(c) Both claims are wrong.
(d) Both claims are correct.

Before I analyze the concepts of content and representation in greater detail in the next sections to try and identify the reasons that might be given to explain why these concepts are used so differently, I would like to discuss in which ways it is possible to defend option (d). Two approaches suggest themselves. First, one might hold that ›content represents‹ and ›content is represented‹ are not only plausible positions but also that *representation* and *content* do in fact have the same meaning in both cases. This would amount to endorsing the position that x represents a content that itself represents y.

$$x \xrightarrow[\text{represents}]{} \text{content} \xrightarrow[\text{represents}]{} y$$

While this is certainly a theoretical possibility, there does not seem to be a single author who holds such a position explicitly. It might well be the case that some philosopher has endorsed ›content represents‹ in one paper and ›content is represented‹ in another paper but I have not discovered an article in which both positions were held at the same time. Another reason for rejecting this possibility is that if it were true, at least one of the readings of representation would not retain its original meaning because it would not be compatible with common sense: People do not seem to claim that x is about or means c which itself is about or means y; e. g., a fairy tale does not seem to be about a certain content that is itself about dragons and tigers.[1]

Second, if ›content represents‹ and ›content is represented‹ are both true, then it is likely that either the concept of representation or the concept of content has multiple meanings. In this case it would be wrong to hold that x represents a content that itself represents y but either

$$x \xrightarrow[\text{represents}]{} \text{content}_1$$
$$\text{content}_2 \xrightarrow[\text{represents}]{} y$$

or

[1] The only exceptions to this rule occur when the contents of representations are themselves representations, e. g., the phrase ›Picasso's Guernica‹ can be argued to represent a content (a painting) which itself represents another content (the sufferings of war).

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$$x \xrightarrow[\text{represents}_1]{} \text{content} \xrightarrow[\text{represents}_2]{} y$$

These possibilities suggest that there either are two distinct conceptions of content or two distinct conceptions of representation (or both). In the next section I will discuss primarily the first possibility before I analyse the second option in section 3.

2. Are there multiple meanings of content?

In the previous section, I presented data on the use of the concepts *content* and *representation* and highlighted a tension between two positions: Some authors believe contents to be represented whereas others hold that contents represent. In this section of the paper I will discuss several attempts to explain the tension between the two ways of relating content to representation by investigating the concept of content. I will argue that these attempts fail to respond appropriately to the challenge.

2.1. Are we merely confused about words?

If the tension that I have exposed in the previous section were restricted to the word ›content‹, then one might suspect that the source of the confusion lies with the word ›content‹ itself, and not so much with the concept *content*. In other words, the confusion would be more of a linguistic problem – down to a sloppy use of the word ›content‹ – rather than a serious confusion regarding this concept. To be clear, this would still be problematic. An imprecise use of words can do serious damage. A lot of the explanatory power of cognitive and linguistic theories hinges on the correct use of the terms. However, it would not be as serious as if there really were a confusion of concepts, because people who use words a little differently, would arguably still discuss the same issues that involve the notions of content and representation.

The problem, however, cannot be identified as being a matter of using words sloppily. The same tension is evident once we investigate the relation between the concept *representation* and the concept *proposition*.

On the one hand, some people claim that ›propositions represent‹:

- »the states of affairs which the *proposition represents*« (Faulkner 1998, 307)
- »this *proposition represents* such and such a situation.« (Wittgenstein 1961 (1914), 8e)
- »the *proposition represents* the world« (King 1995, 517)

On the other hand, propositions are also thought to be represented:

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- »The human [...] mentally *represents a proposition* in thought.« (Currie 1980, 247)
- »a propositional representation R *represents a proposition* p« (von Eckardt 2012, 41)
- »thinking that p requires *representing the proposition* that p.« (Cummins 1996, 3)

Again, accounting for these uses can hardly be explained by claiming that propositions both represent and are represented, i. e., that mental states or sentences represent propositions that themselves represent objects in the world. People neither argue for this, nor does it square with our commonsense understanding of these terms.

These data not only show that the problem is not merely a matter of using words imprecisely, it indicates that the source of the confusion may be found in the concept *representation* rather than in the concept *content*. Propositions are often thought to be the contents of (at least some) mental states, but propositions are usually understood much more widely than merely as contents of mental states. They are also taken to be »the primary bearers of truth-value, the objects of belief and other »propositional attitudes« (i. e., what is believed, doubted, etc.), the referents of that-clauses« (McGrath 2014). Hence, we can tentatively take these data to be evidence for a confusion in the concept *representation*.

2.2. The two meanings of the concept *concept*

Another explanation that seems more promising to account for the apparent confusion of these central notions is to point out that the concept *concept* has two meanings that are well-known to differ in important respects from each other. Concepts are often considered to be mental representations and as such represent or at least have the power to represent. The Fregean tradition, however, has it that concepts are not mental representations but rather abstract objects that are represented by mental states. Frege (1892) famously argued that thoughts cannot be subjective mental states because they can be shared between people. As concepts are constitutive of thoughts, concepts are not themselves representational devices but represented by mental states. Thus, if we do find that the same pattern holds among the concept *concept* that we find among the concepts *content* and *proposition*, then we might have dissolved the tension by applying this solution also to *content* and *proposition*.

In fact, the problem seems to equally apply to the concept *concept*. Some people say that concepts represent, others, that concepts are represented:

- »*Concepts represent*, stand in for, or refer to things other than themselves.« (Prinz 2004, 3)

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- »*concepts represent* whatever they do precisely in virtue of these roles.« (Aydede 2012)
- »substance *concepts represent* permanent features« (Werning & Maye 2007, 435)

But also:

- »Consider a simulator that *represents the concept* of bicycle.« (Barsalou 2009, 1282)
- »the brain *represents concepts*« (Binder & Desai 2011, 528)
- »[a] connectionist network, which represents concepts« (Goodwin & Johnson-Laird 2011, 38)

Whether or not *those* people who claim that concepts are represented are in the grip of a Fregean tradition I am not able to answer. I am generally sympathetic, though, to the idea that these two differing meanings of the concept *concept* are at least partly responsible for why some believe that concepts represent and others that concepts are represented. However, the two different meanings of the concept *concept* cannot explain the confusion surrounding the notions of *content* and *proposition*. This can be seen by analyzing the distinction between the vehicles and the content of a mental representation. Dretske states:

> There are representational vehicles – the objects, events, or conditions that represent – and representational contents – the conditions or situations the vehicle represents as being so. In speaking about representations, then, we must be clear whether we are talking about content or vehicle, about what is represented or the representation itself. (2003, 68)

When concepts are thought of as mental representations, they are considered to be vehicles that represent x: »Concepts are vehicles of representation, tools for thinking« (Sainsbury & Tye 2011, 101). When, on the other hand, concepts are thought of as abstract objects, they are considered to be the contents of mental representations. Thus, concepts are sometimes identified with the vehicles and at other times with the contents of mental representations. Once we have this distinction between vehicle and content in place, it is easy to see why we cannot apply the solution we have just offered for the concept *concept* to the concept *content*. Contents can never be identified with the vehicles of mental representations that are supposed to be related to contents – contents are not the vehicles of their own content. A similar argument holds for the concept *proposition*. Whereas it may be true that the term ›proposition‹ has more than one meaning, none of them seems to be identifiable with the vehicle of a mental representation.

2.3. Conceptual content

Although we have seen in the last paragraph that the multiple meanings of *concept* cannot be directly employed as an argument to explain the confusion surrounding the concepts *content* and *representation*, I would like to explore a more indirect route of using the concept *concept* by looking at the debate on conceptual content.

One of the most fruitful discussions in the philosophy of perception over the last few decades has revolved around the question of whether perceptual content is conceptual or non-conceptual. The idea of non-conceptual content was introduced by Gareth Evans (1982) and several arguments have been put forward in favor of the existence of non-conceptual content. Peacocke (1992), for example, maintains that perceptual experiences are too fine-grained for people's conceptual capacities. Others have argued that none of the arguments conclusively show that perceptual experiences are non-conceptual. Irrespective of the arguments in favor of or against conceptual content, we find two different ways of thinking about conceptual content. On the one hand, some philosophers specify conceptual content as content that is represented by concepts, on the other hand, conceptual content can be considered to be content that is constituted by concepts. These two diverging ways of specifying the nature of conceptual content seem to be both present in Evans's original contribution on this topic:

> Some things Evans says suggest that it is mental states, rather than their contents, that are conceptual or non-conceptual, and sometimes he substitutes ›non-conceptualized‹ for non-conceptual, but it is clear that he thinks there are two kinds of content, and not just two kinds of states that content is used to characterize, or two ways in which content might be expressed. (Stalnaker 1998, 339)

Therefore, assuming a view of concepts that takes them to be representing, we can construe two arguments depending on one's view on conceptual content: One supporting the idea that content represents, the other that content is represented.

Argument for ›content represents‹:

(A) Concepts represent.
(B1) Conceptual content is constituted by concepts.
(C1) Therefore, content represents.

Argument for ›content is represented‹:

(A) Concepts represent. (B2) Conceptual content is represented by concepts.
(C2) Therefore, ›content is represented‹.

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Similar arguments can be raised once we consider the debate on cognitive penetration – another topic that has sparked a lot of interest especially during the last decade. According to advocates of cognitive penetration, our experiences can differ phenomenally depending on the concepts and background knowledge that people entertain.

Argument for ›content represents‹:

(A) Concepts represent.
(B1) Content is penetrated by concepts.
(C1) Therefore, content represents.

Argument for ›content is represented‹:

(A) Concepts represent. (B2) Experiences are penetrated by concepts that represent their content.
(C2) Therefore, content is represented.

While these arguments are certainly valid and lead to different conclusions regarding the relation between *content* and *representation*, I do not think they actually explain the widespread confusion that I have exposed – although I do concede that they might have added to its extent. First, the debates on conceptual content and cognitive penetration, as important as they are, are rather specific areas of research in the philosophy of mind. The two different stances regarding representational content have infected the cognitive science literature much more widely though. Second, the questions on whether and which mental states have conceptual content and whether they are cognitively penetrated are most often raised for subpersonal states and sensory experiences. The questions do not arise for thoughts and propositional attitudes for which the confusion applies at least as much as for sensory states.

2.4. Externalism and internalism about content

A final attempt to explain the confusion surrounding the notion of representational content by focusing on *content* can be dealt with rather swiftly. The ontology of content has triggered substantial discussions not only in philosophy but in other areas of the cognitive sciences. Whereas externalists believe that content depends substantially on the external world, internalists hold that content at least supervenes on mental states but not on extra-mental reality. Superficially, it might seem that internalists are more likely to endorse the position that content represents the world; after all, if content represents the world, it will not be substantially dependent on the world. The externalist, in contrast, might be more likely to claim that content is represented by the vehicles of mental states. However, the division between internalists and

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externalists does not match the division between people stating that content represents and those stating that content is represented.

While I have not discussed all possible avenues to dissolve the confusion that I highlighted in the first part, I conclude this section by stating that the tension between ›content represents‹ and ›content is represented‹ is not plausibly accounted for by postulating the existence of two different notions of content.

3. The two notions of representation

A promising explanation to account for the confusion regarding the relation between content and representation does not seem to be available by investigating the concept of content. Hence, I will now switch my strategy and instead focus on the concept *representation*. Putting my cards on the table, I believe that there are two distinct conceptions of representation that are used in philosophy and the cognitive sciences. The distinction between the two can be appreciated best when considering cases of misrepresentation.

3.1. The case of misrepresentation

Most theories of representation argue that it is necessary for a representation to possibly be false.[2] If an orange ball is experienced as a red ball in adverse lighting conditions, then the experience is said to misrepresent how the world really is; if I think about two-legged dogs then I am said to misrepresent the way dogs really are. But how are we to describe such cases?

Imagine that Susan looks at a beautiful horse on a meadow and thinks that she would love to ride the horse. We can express this state of affairs by saying that Susan thinks about the horse on the meadow. So far we have cashed out the representation relation as a dyadic relation – expressible as ›a represents b‹, e. g., Susan's thought represents the horse.

Let us now consider a case of misrepresentation, i. e., take the often discussed Fodorian example in which Susan mistakes a cow for a horse due to adverse lighting conditions. If misrepresentation relations were also dyadic, there would be two candidates for specifying the misrepresentation relation: We could either say (a) that Susan's thought misrepresents the horse, or (b) that Susan's thought misrepresents the cow. But both dyadic relations do

[2] Specific types of statements, e. g., cogito statements and analytic truths, may not allow for misrepresentation. When I state ›I think‹, my claim can neither misrepresent myself as the person who is thinking nor can it misrepresent that I am *thinking*. These cases will be bracketed from our discussion as they do not affect the general thrust of the argument.

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not seem to be satisfactory analyses of the situation. Following the standard interpretation of the term ›to misrepresent‹ to mean ›to falsely represent‹, we would rule out the first possibility, namely that Susan's thought misrepresents the horse. It seems that if indeed she represents a horse then she didn't do so falsely. The second possibility fails to specify the nature of misrepresentation, i. e., in which way or how misrepresentation took place. Thus, to fully express such cases of misrepresentation, it seems we need to revert to triadic relations: ›Susan's thought misrepresents the cow as a horse.‹

Even if this triadic relation intuitively captures the gist of cases of misrepresentation, we can still ask – and need to ask – what Susan's thought actually represents. The number of entities a mental state represents does not multiply in cases of misrepresentation: So, does her thought represent a cow or a horse?

In advancing an answer, we can note that when considering triadic representation relations, the ›mis‹ in ›misrepresentation‹ does not provide any additional information. Cummins states:

> We think of a system confronted with a cow and tokening a |horse|. That, surely, is a case of misrepresenting a cow as a horse. And that, in turn, is surely just representing a cow as a horse [...]. The ›mis‹ can just be dropped; it is not doing any work. (1996, 11)[3]

Cummins rightly observes that when specifying cases of misrepresentation as triadic relations, ›misrepresenting‹ can be replaced by ›representing‹. Thus, when analyzing these triadic relations, it seems that misrepresentation and representation are two interchangeable concepts, yielding ›Susan's thought represents a cow as a horse‹. Returning to the question of whether Susan's thought represents a cow or a horse, I believe that we have reasons to consider *both answers to be correct*, depending on which sense of representation one entertains.

First, there is a clear sense in which it is true that if Susan represents a cow (as a horse), she does represent a cow: *how* a certain object is represented is independent from the fact *that* an object is represented. This first conception of representation creates an extensional context, i. e. we can existentially generalize the representation relation: if Susan represents an x, then there must exist an x such that x is represented. In our example, the only candidate that fits this sense of representation which allows for existential generalization, is the cow on the meadow. What makes this type of representation a case of misrepresentation is that the content of Susan's thought does not ›correctly‹ represent the cow. This sense of representation, so I believe, is driving the idea that ›content represents‹. Second, there also seems to be a second conception

[3] Cummins ultimately rejects this view of misrepresentation.

of *representation* that allows us to argue that Susan represented a horse but not a cow. The easiest way to see this, is to analyze Susan's thought irrespective of what happens in the world. It is simply impossible to deny that Susan entertained the concept of a horse when she thought that she would like to ride the beautiful horse. However, arguably, the meaning of a concept does not change whenever it is wrongly applied. Thus, the content of the concept |horse| remains a horse-content – just ask Susan whether she actually wanted to ride a cow. This conception of representation, in contrast to the first one, does not allow for existential generalization, i. e., by claiming that Susan's thought represented a horse, we cannot infer that there exists an x such that x is represented. It is the very nature of this second sense of representation that we cannot quantify existentially. According to this second sense of representation, misrepresentation is not a matter of a content misrepresenting the world but rather that a content which is represented by a mental state does not match its target.

In summary, our analysis of cases of misrepresentation demonstrates that we use the notion of representation in two distinct ways. According to the first, ›content represents_1 y‹, y is an object or property in the world. According to the second, ›x represents_2 a content‹, x is the vehicle of a mental representation.

$$x \xrightarrow[\text{represents}_2]{} \text{content} \xrightarrow[\text{represents}_1]{} y$$

3.2. Our commonsense conception of misrepresentation

Cases of misrepresentation not only demonstrate that we do not have a unique conception of representation; it is also often unclear whether a case of representation counts as a case of misrepresentation. In the last part of this paper, I will present experimental data on our commonsense conception of misrepresentation that shows how deeply engrained our confusion regarding the concepts *content* and *representation* is in people's commonsense conception of representation.

We have seen that the notions of content and representation are considered to be semantic notions. When a mental representation falsely represents what it ›should‹ represent, it misrepresents. We then often speak of true and false representations. However, it is often left open what a representation ›should‹ represent. In other words, it is often unclear against which state of affairs the correctness of a mental representation is to be measured. It seems that we usually measure the truth of a representation against the actual state of the world. If you believe ›Deborah Crombie invented the character of Inspector Lynley‹ then you hold a false representation. On the other hand, if you think

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›Elizabeth George invented Inspector Lynley‹ your representation is true, simply because the world is such that it was Elizabeth George who invented Inspector Lynley. Sometimes, however, the correctness of a representation is evaluated not in regards to the actual state of the world. Take following example:

Imagine that Susan is being asked the following question in a math exam: »There are 9 coins in your pocket; two €1 coins, two 50 cent coins and 5 20 cent coins. How much money have you got in your pocket?« If Susan writes down »I have got €5 in my pocket«, then her teacher will judge her answer to be incorrect, even if she has €5 in her pocket.

The state of the actual world seems to be irrelevant for the truth of Susan's answer because the target was a truth about a hypothetical or possible world. Thus, in this example we are inclined to speak of a case of misrepresentation, error and falsehood even though her answer matched the actual world. Cases in which the truth of a statement is evaluated independently of the actual world are not restricted to hypothetical and imaginary situations:

Imagine Jim is participating in a quiz show. The quiz master asks: »Jim, which country has won the most FIFA World Cup Finals and how many did it win?« Jim confidently responds: »Germany has won four World Cup Finals.« In this case, although Jim's assertion is in accordance with the state of affairs of the actual world (Germany indeed won four times), his answer is incorrect because the quizmaster was looking for a specific truth about the world (Brazil has won five times), not just any statement that corresponds to the actual world.

In these two examples, it makes sense to consider the statements to be incorrect although they are true about the actual world. For these and other reasons, Cummins (1996) suggests making a distinction between the truth/falsity and the correctness/error of representations. Whereas representations are true when they are in accordance with the *actual* state of the world, representations are correct, when they hit their target. In the first case, the target of Susan's representation is a state of affairs in a possible world; in the second, the target is a *particular* state of affairs of the actual world.

In most philosophical discussions, but also in our everyday use of those semantic notions, people hardly distinguish between error and falsehood. Situations in which a representation is erroneous but true are very common, but contextual information normally makes it easy for people to judge whether an answer, and utterance or the thought itself is a case of misrepresentation, falsehood or error. In some situations, we are drawn towards judging the truth of a statement by evaluating it in accordance with the actual world. In others, we judge its truth by evaluating whether the application of a representation hits a certain target that is at least partially independent of the state of affairs in the actual world. Unfortunately, our concepts of misrepresen-

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tation, error and falsehood are applied in two different ways. To highlight this dilemma, I have designed two scenarios in which the truth/falsehood of a representation can be either interpreted as being a matter of corresponding to the actual world, or interpreted as being coherent with the information a person has at his disposal.

> Party scenario 1: Anne and Robert go to a party late at night. On the way Anne asks Robert which of his friends are at the party. He answers that Jack and Jill are at the party. However, he had been told by Jill beforehand that she would not go – a piece of information that, at that moment, Robert overlooked. When they arrive at the party, it turns out that Jill had changed her plans, and actually is at the party.

In responding to the question »Was Robert's answer to Anne question true/ an accurate representation?«, we need to decide whether we would like to take truth to be a matter of correspondence with the actual world, in which case Robert's answer is true, or whether a *correct* response is a matter of hitting a certain target that is being determined by its coherence with the available information he has got; in that case, Robert's answer would be false because he overlooked a piece of information that Anne would have expected Robert to take into account.

The second scenario reverses the conditions of the first:

> Party scenario 2: Anne and Robert go to a party late at night. On the way Anne asks Robert which of his friends are at the party. He answers that Jack and Jill are at the party – just as these two friends had told him beforehand. When they arrive at the party, it turns out that Jill had changed her plans, and actually did not go to the party.

In the second scenario, we would say that Robert's answer is false (or a case of misrepresentation) only if we believe that the truth of a representation is being determined by its matching the actual world. However, Robert's answer is coherent with the information he has got, especially the information that Jill gave him, and hence, we might want to say that Robert's answer was correct.

In order to test people's intuitions in these cases, I asked 124 people either

1. Was Robert's answer to Anne's question true?or
2. Was Robert's answer to Anne's question an accurate representation?

in regards to either party scenario 1 or party scenario 2.

Figure 1 depicts the results for party scenario 1. It shows that a majority of the participants consider Robert's answer to be true (66 % yes, 24 % no, 10 % not sure) or an accurate representation (62 % yes, 35 % no, 3 % not sure)[4],

[4] 29 participants answered the question about the truth of Robert's answer, whereas 31 participants were asked whether Robert's answer was an accurate representation. All of the participants

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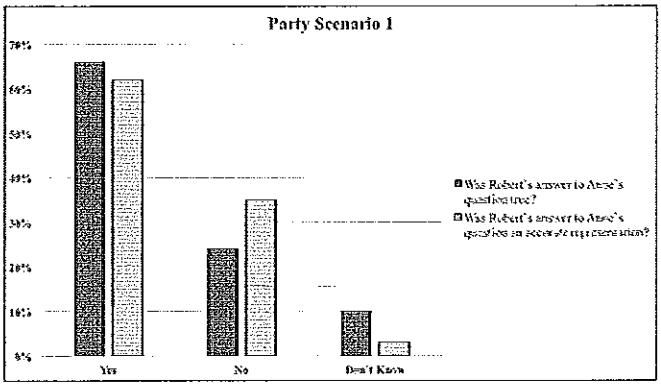


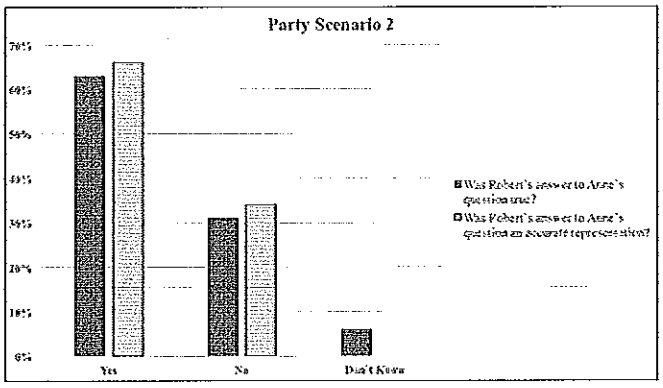
Party Scenario 1

although Robert failed to answer the question to the best of his knowledge and merely got lucky that Jill had changed her mind. Thus, around 2/3 of the participants seem to take Robert's answer to be correctly *representing the world*, whereas roughly 30 % assume a different perspective on Rob's representational target: Robert's answer was supposed to represent a certain target that is at least partially independent of the actual state of the world. As Robert failed to represent this target, they responded that Robert's answer was false. From this data one might draw the conclusion that for a majority of the population, people's thinking is dominated by evaluating the accuracy of a representation in comparison with the actual state of the world. However, the second scenario does not confirm this hypothesis.

As can be seen in Figure 2, a majority of people consider Robert's answer to be true (63 % yes, 31 % no, 6 % not sure) or an accurate representation (66 % yes, 34 % no, 0 % not sure) although his answer did NOT correctly ›represent‹ the actual state of the world.[5] Just over 30 % of the participants seem to compare Robert's answer to how the world really is. For over 60 % of the respondents, Robert managed to accurately represent the target. Hence, in contrast to party scenario 1, those people that say that Robert's answer is an accurate representation, are likely to endorse a position in which Robert's answer represents a certain content, but not that Robert's answer represents the world. In contrast, a person who believes Robert's answer to be a case of misrepresentation, is likely to conceive this to be a case of misrepresentation because contents represent the world.

were only asked one of the two questions. Participants were all native English speakers and were recruited through the Mechanical Turk website.

[5] 32 participants were asked in each case (64 in total). Again, all of the participants were only asked one of the two questions and none of them had been presented with party scenario 1.



Party Scenario 2

In this and the previous subsection I have analyzed the concept *representation* by investigating cases of misrepresentation. This investigation has revealed two important insights into our understanding of the notion of representation. First, there are clear cases of misrepresentation that demonstrate that there seem to be at least two distinct senses of *representation*. These distinct senses postulate different *relata* of the representation relation. On the one hand, representations can be conceived of as a relation between contents and objects in the world. If the content does not represent the object in the world it is supposed to represent, this representation is classified as misrepresentation. On the other hand, representations can be conceived of as relations between mental states and contents. Misrepresentation is then not properly conceived of as representing falsely, but rather a mismatch between the represented content and the object in the world. Second, by analyzing our common-sense conception of misrepresentation, I have shown that we do not seem to have a well-defined notion of misrepresentation. Whereas misrepresentation may be thought of as a mismatch between the content of a statement and the world, others prioritize representations that are in accordance with the information a person has about the world.

3. Conclusion

The concepts *content* and *representation* are two of the most central concepts in philosophy and the cognitive sciences. As such, it is of utmost importance that philosophers and scientists have a common understanding of these notions and use them coherently. In this paper I have argued that we lack a coherent way of using these terms by demonstrating that the content of mental states is claimed to both represent but also to be represented. I have

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discussed various arguments that try to locate the source of the confusion within the use the concept *content* but dismissed them as either false or insignificant. Instead, I argued that there are two different meanings of the term ›representation‹ by analyzing cases of misrepresentation. Not only do we fail to have an adequate description of cases of misrepresentation, a survey that I conducted reveals that we do not even have a clear test for determining when a case of misrepresentation occurs, and how to evaluate the correctness of a representation. Unless we disambiguate the concept *representation*, little progress can be expected in this important area of research.

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