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Distinguishing the Appearance from the Reality of Pain

Abstract: *It is often held that it is conceptually impossible to distinguish between a pain and a pain experience. In this article I present an argument which concludes that people make this distinction. I have done a web-based statistical analysis which is at the core of this argument. It shows that the intensity of pain has a decisive effect on whether people say that they 'feel a pain' (lower intensities) or 'have a pain' (greater intensities). This 'intensity effect' can be best explained by people's varying confidence about their pain, and indicates that 'feeling pain' can be identified as introspective report and 'having pain' as an objective statement — analogous to the traditional sense modalities. However, if people have the ability to make both introspective and objective statements about pain, then it seems indeed the case that they distinguish the appearance from the reality of pain.*

Many philosophers claim that there is a tension between the semantic properties of pain expressions and the conceptual role of pain (Bain, 2007; Hill, 2006). On the one hand, we ascribe pains to specific locations in or on the body ('I have a pain in my stomach') as if they were external to the mind, on the other hand, our analysis of the concept of pain seems to reveal that there is no distinction between the appearance and the reality of pain, i.e. a person who feels a pain, really has a pain. In this paper I present an argument which demonstrates that people use expressions of pain in a way which challenges the widely held thesis that there is no appearance-reality distinction of pain.

I begin by introducing the appearance-reality distinction of the traditional five sense modalities in the first part of this paper. Children

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need to understand the appearance-reality distinction before they can make truly introspective judgments. I then expound why many philosophers believe that the appearance-reality distinction is not applicable to pain. The conceptual role of pain (CRP) simply seems to suggest that

(CRP) If a person *feels* a pain, then the person *has* a pain.

In the second part of this paper I argue that the intensity we think properties like saltiness, loudness, colour have, has a decisive effect on how confident people are in judging that objects really have this property. In contrast, a low degree of confidence will often lead people to make introspective statements, making claims about the way things appear to them ('the shirt looks blue') rather than ascribing it to non-mental objects ('the shirt is blue'). The correlation between low signal intensity and introspection pervades all sense modalities but has not yet been identified for pain.

I have done a web-based statistical analysis (section 3) which demonstrates that people mostly use the phrase 'having pain' when they describe strong pains, but when they talk about less intense pains they have a preference for the 'feeling pain' expression. This analysis indicates that people are confident in ascribing pain to a body part only if the pain is sufficiently strong, and thus that they use expressions of pain in an analogous way to expressions in other sense modalities. These empirical results seem to make the following argument sound:

- (1) Empirical data shows that the intensity of pain has a decisive effect on whether people assert that they have a pain or feel a pain (section 3).
- (2) 'Having pain' and 'feeling pain' can be identified as objective report and introspective report respectively if their use demonstrates a dependency on the intensity of pain (section 2).
- (3) People's ability to make objective and introspective reports on pain depends on them distinguishing the appearance from the reality of pain (section 1).

From (1), (2), and (3) it follows:

- (4) People distinguish between the appearance and the reality of pain.

Thus, our use of pain expressions contradicts the standard analysis of the concept of pain.

1. The Appearance-Reality Distinction

‘Things are not always as they seem’ is a well known quote from Phaedrus. When we are first confronted with the Müller-Lyer illusion (Haart, Carey and Milne, 1999), we usually believe that the upper line with the arrows pointing outward is shorter than the line underneath with the arrows pointing inward. Even when we are told that they are of the same length, our visual system does not adjust to the truth but keeps on ‘telling’ us that they are of different lengths. What appears a certain way does not need to reflect how things really are. Although we do not always know why these illusions occur, we have no difficulties in grasping the appearance-reality distinction. However, our awareness of this distinction does not come easy. Up to the age of 4 to 5 years, children conflate appearance with reality, e.g. if a white car is shown to 3-year-old children, they correctly state that the car both appears white and really is white. Then, the car is put behind a plastic filter that makes the car appear red: 3-year-olds claim that the car not only appears red but also that the car really is red. Flavell (1986, p. 418) states:

The six-year-old is clearly in possession of some knowledge about this [appearance-reality] distinction and quickly senses what the task is about. The three-year-old, who is much less knowledgeable about the distinction, does not.

Children do not only need to understand this distinction, they also need to find a way to express this distinction. The means by which we express this distinction is through appearance statements, e.g. ‘It sounds as if my phone is ringing, but it is switched off, it must be an hallucination’. In the case of the Müller-Lyer illusion, people say that the lines *look* to be of different lengths, but they are the same. When people make objective reports, they ascribe properties like sound and length to the objects themselves, when they use introspective statements, they refer to the appearances of these objects.¹

However, many philosophers have argued (Dretske, 2006; Kripke, 1980; McGinn, 1982) that there is no appearance-reality distinction when it comes to pain. Dretske (2006, p. 59) states: ‘You can’t be in pain without feeling it, and feeling it requires awareness of it.’ According to Dretske, we cannot make any sense of the notion of unfelt pains that linger somewhere in the body waiting to be discovered. Also,

[1] Our awareness of the appearance-reality distinction applies to all traditional sense modalities: visual, auditory, olfactory, tactile, and gustatory senses. Hence, we find ourselves making introspective statements in all five sensory modalities, and we can make sense of the existence of illusions and hallucinations because of this distinction.

whenever a person feels a pain, it seems absurd to suppose that this person just feels the pain, but there really is no pain. Therefore, people who feel pain are said to be both incorrigible and authoritative about their pain. Kripke (1980) argues that in contrast to non-mental objects and properties, there is no *appearance-reality* distinction of pain. Real pains appear to be pains, and pains that appear are really there. If this is correct, then the conceptual role of pain seems to commit us to the following conditional:

(CRP) If x feels a pain, then x really has a pain.²

Unfortunately, the truth of (CRP) leads to an apparent paradoxical nature of pain. This is so because the conceptual role of pain is in tension with the semantic properties of expressions of pain. When people are asked to state the location of their pain, they have no difficulties in normal circumstances to make claims like ‘I have a strong pain in my ankle’ or ‘there is a stinging pain in my shoulder’. It is part of the semantics of these expressions to at least ascribe pain to a non-mental location. If we deny this position then it is literally true that ‘no one has ever made a true claim about the location or intensity of a pain!’ (Hill, 2006, p. 89). Judging from these pain expressions alone, there is no reason to suppose that pains depend on their existence on people’s awareness of them.

Before I show that our linguistic behaviour does not reflect (CRP) but that people do make a distinction between the appearance and the reality of pain, we first need to understand the connection between the intensity of signals and introspection.

[2] Many people would argue that (CRP) should be formulated as follows: ‘If x feels pain, then x really is in pain.’ However, the syntactic properties of ‘being in pain’ are different from ‘feeling a pain’ and ‘having a pain’. If a person wants to make a more specific statement about the pain she experiences, she cannot use the ‘being in pain’ expression any longer, e.g. if a person feels a throbbing pain in her knee, it makes no sense to say that ‘she is in throbbing pain’, but only that ‘she has a throbbing pain’. Furthermore, she cannot state that she is in pain in her ankle or she is in ankle-pain. The person will say that she ‘has a pain in her ankle’. In other words, as soon as someone wants to characterize pain, and/or specify the location of her pain, the phrase ‘to be in pain’ is not applicable. Furthermore, any other major European languages — French, German, Italian, and Spanish — do not have an equivalent expression to ‘being in pain’. Instead, people who speak these languages use expressions that are equivalent to ‘having pain’ and ‘feeling pain’. Thus, the ‘being in pain’-phrase seems to be an idiosyncrasy of the English language, and it seems advisable to analyse the structure of the concept pain using expressions of pain that apply to different languages as well.

2. Signal Intensity, Confidence, and Introspection

In all sensory modalities we observe that the intensity of a signal directly influences how confident people are in making assertions about the elicitor of the signal (Lund, 1926), e.g. if a soup has way too much salt in it, people will be very confident to assert that the soup is salty, whereas when people season to taste, they often do not display the same confidence about whether there is too little or too much salt in it. If there is just a scent of burned toast in the air, people will not have the same confidence in reporting that something is burnt, compared to when there is a strong smell permeating the room. Lund (*ibid.*, p. 372) argues that ‘[the] increase in confidence and clearer recognition is attained, not only through an increase in the elements that seem familiar, but in the increase in “intensity” of these’.

Our confidence, in turn, will have a significant effect on how we express ourselves. More specifically, it will have an impact on whether we ascribe a property to an object, or merely to the appearance of this object (Quinton, 1956). Compare the following statements:

Gustatory sense: High degree of confidence: The soup is salty
 Low degree of confidence: The soup tastes salty

Visual sense: High degree of confidence: The shirt is blue
 Low degree of confidence: The shirt looks blue

Thus, it seems that if signals are weak, we are not only less confident about a certain state of affairs, but also tend not to make assertions about objects and their properties but use sensory vocabulary to express ourselves. In contrast, it seems that the more intense a signal, the more likely it is that we make an objective statement. If the soup is really salty, the drums really loud, the flat filled with the smell of burned toast, we make statements about the actual objects we are interested in (soup, drums, burned toast). However, if the soup is just a bit too salty, the auditory conditions pretty bad, the scent of burned toast really weak, we talk about the way things appear to us — making introspective judgments. But how does pain figure in this picture? Is it not possible that following state of affairs holds too?

Nociceptive sense: High degree of confidence: I have a pain in
my shoulder

Low degree of confidence: I feel a pain in my
shoulder

If asked, most people would probably consider such a linguistic pattern as unlikely. After all, we have seen in the first section that people do not seem to make any distinction between ascribing a pain to a part of their body ('I have a pain in my shoulder') and thinking of pain as an experience ('I feel a pain in my shoulder'). Instead, (CRP) states that whenever people say that they have a pain, they can equally well state that they feel a pain, independently of the intensity of the pain. Hence, the intensity of pain should have no effect on the confidence rating regarding the pain, and that we do not distinguish between introspective pain reports and factual statements.

If there is no difference between 'feeling a pain' and 'having a pain' then it is reasonable to suppose that people use these two expressions interchangeably. However, I have carried out an investigation into people's linguistic behaviour regarding their use of these two expressions and discovered clear structural differences between people saying that they 'feel a pain' and 'have a pain'. These differences seem to show that people are committed to an appearance-reality distinction of pain.

3. An Empirical Analysis into the Use of Pain Expressions

Almost every person is worried about feeling pain and about what causes us to feel certain pains. Since the rise of the internet, many health forums have emerged online where people can discuss issues related to health problems and ask questions about their health. Morahan-Martin (2004, p. 497) claims that 'worldwide, about 4.5% of all Internet searches are for health-related information'. The experience of pain is very much a central notion in these debates, especially because people often do not know the cause and the seriousness of these pains. In order to find out how people describe their pains, I have used three search engines (Yahoo, Bing, Google) to look for differences in the use of the pain expressions 'I feel a pain' and 'I have a pain'. I searched for differences regarding the description of pains of varying intensity, from minor and slight pains to severe and big pains in order to investigate their dependence on the intensity of the pain signal. For example, I entered the phrase 'I feel a little pain' into one of the search engines, and noted the amount of webpages (hits) that

feature this expression. I then searched for ‘I have a little pain’, noted the number, and compared the ratio between these numbers, e.g. ‘I feel a little pain’ yielded 884 hits on the Yahoo search engine, and ‘I have a little pain’ yielded 951 hits (see appendix for methods and statistics). The ratio between the number of times ‘I feel a little pain’ and ‘I have a little pain’ is used is roughly 1:1, i.e. people use the phrase ‘I feel a little pain’ nearly as often as ‘I have a little pain’. However, when I searched for expressions that describe pains with greater intensity, the situation is surprisingly different. Searching for ‘I feel a severe pain’ resulted in only 72 hits, whereas the outcome of ‘I have a severe pain’ was 520 hits. Thus, the ratio between the phrase ‘I feel a severe pain’ and ‘I have a severe pain’ is approximately 1:7 on the Yahoo search engine.

	Ratio Yahoo	Ratio Bing	Ratio Google	Average
I... a minor pain	1:2	1:2	2:1	1:1
I... a small pain	1:3	1:3	1:1	1:2
I... a slight pain	1:1	1:1	1:1	1:1
I... a little pain	1:1	1:2	1:1	1:1
...ing a minor pain	1:1	1:2	1:1	1:1
...ing a small pain	2:1	2:1	2:1	2:1
...ing a slight pain	2:1	2:1	2:1	2:1
...ing a little pain	1:1	2:1	2:1	2:1
I... a major pain	1:15	1:17	1:9	1:14
I... a severe pain	1:7	1:6	1:4	1:6
I... a bad pain	1:6	1:4	1:3	1:4
I... a big pain	1:4	1:3	1:1	1:3
...ing a major pain	1:9	1:11	1:3	1:8
...ing a severe pain	1:3	1:4	1:2	1:3
...ing a bad pain	1:11	1:12	1:3	1:8
...ing a big pain	1:2	1:1	1:1	1:1

Table 1. Ratio between search hits for expressions with ‘feel’ and expressions with ‘have’ rounded to the next integer for three different search engines and their average (column 5), e.g. according to Google, people use the phrase ‘I have a severe pain’ about four times more often than ‘I feel a severe pain’ (row 12, column 4).

The next step was to confirm this data by widening the scope of pain attributes. The final analysis includes four attributes for less intense

pains (minor, small, slight, little) and four attributes for more intense pains (major, severe, bad, big). The pattern proved stable with all eight attributes: if people describe a less intense pain, they tend to use the ‘feel’-expression, whereas they describe more intense pain with the ‘have’-expression. I also checked these results with two further search engines, Google and Bing, and the outcome was very similar (see Table 1). This linguistic behaviour is not only prevalent when people write about themselves (i.e. ‘I feel...’); I also compared the use of the expressions ‘feeling a pain’ with ‘having a pain’ for the same attributes as above. As can be seen in Table 1, people use the word ‘feeling’ for less intense pains (small, slight, little) about twice as often compared to the word ‘having’, and use the word ‘having’ more often than the word ‘feeling’ when describing more intense pains. On average, when pain is less intense, people use the ‘feeling pain’ expression slightly more often compared to the ‘having pain’ expression, but when the pain is intense, people choose to express themselves with the ‘having pain’ expression around three to four times more often compared to the ‘feeling pain’ expression.

4. Objections Against the Argument

I have argued (section 2) that we often make introspective statements referring to how things appear to us if we lack the confidence about how things are in the world, and that this confidence is dependent on the intensity of the relevant signal. In the first section we have seen that our awareness of the distinction between appearance and reality is a necessary condition for making introspective statements and refraining from objective statements. With the results in section 3, the argument I have presented against the claim that the appearance-reality distinction is not applicable to pain holds:

- (1) Empirical data shows that the intensity of pain has a decisive effect on whether people assert that they have a pain or feel a pain (section 3).
- (2) ‘Having a pain’ and ‘feeling a pain’ can be identified as objective report and introspective report respectively if their use demonstrates a dependency on the intensity of pain (section 2).
- (3) People’s ability to make objective and introspective reports on pain depends on them distinguishing the appearance from the reality of pain (section 1).

From (1), (2), and (3) it follows:

- (4) People distinguish between the appearance and the reality of pain.

If one rejects (4) which premise will one abandon? Premise (1) is hard to deny. The empirical data proves to be stable across different pain expressions and across various pain attributes. Premise (3) is not beyond dispute but a widely accepted fact: without making a distinction between appearance and reality, people's reports cannot be properly classified as objective or introspective. The weakest link in my argument seems to be premise (2). Let me restate the reasons for accepting the conditional in premise (2). I have argued in section 2 that the correlation between the intensity of a signal and the choice of words ('appearing' versus 'being'/'having') is to be explained by a difference in people's confidence about the signal. Furthermore, we think that if a person ascribes a property to the appearance of an object (e.g. 'it tastes salty') when less confident about it, then we can interpret this report as introspective. Hence, the following two objections are likely to be made:

- (A) It is not the degree of confidence about the felt pain that explains people's choice of words when the intensity of pain varies.
(B) Although people tend to use the expression 'I feel a pain' when less certain about their pain and 'I have a pain' when the degree of confidence is high, this is not sufficient for identifying these expressions as introspective and objective respectively.

How can objection (A) be fleshed out? One might claim that the correlation between the intensity of pain and people's choice of pain expressions is a brute fact about how we use these expressions. More specifically, it is a fact about the English language that 'feeling pain' is used when pains are less intense, and 'having pain' is used for stronger pains. However, without an alternative explanation for this fact about language use, objection (A) does not seem to get off the ground. Thus, a more promising line would be to offer an alternative explanation for the observed correlation. I want to briefly consider three options.

The first alternative explanation is to say that 'feeling pain' is used where there is less clarity about the location of the pain, whereas 'having pain' tends to be used where there is clarity of location. This suggestion implies of course that less intense pains are more difficult to localize, which does not seem to be true from a first-person point of view. In any case, statistical analysis does not support this explanation. According to the web, people have no preference to say that they are 'feeling pain somewhere' in the body, compared to 'having pain

somewhere' in the body. Hence, localizability does not seem to have an effect on our choice of words. A second option is to argue that 'feeling pain' may imply lack of longevity or persistence of the pain, whereas 'having pain' implies a certain continuity of the pain. Again, I checked the web for any correlations, but there is no indication that 'feeling pain' or 'having pain' is the preferred phrase when the pain occurs intermittently. However, there is a strong preference for people to say that they 'have a constant (continuous) pain'. But this is only to be expected if my interpretation is correct. I argued that the more confident people are about their pain, the more likely it is they will say that they have a pain. If the pain is continuous, then people are also more confident about it, and hence use the 'having pain'-expression. The last alternative explanation which seems a plausible candidate is that people use the phrase 'having pain' in the case of more severe pains because they want to communicate a different message compared to what 'feeling pain' conveys. This message could be something along the lines of 'the pain is strong, please help me', whereas a person who states that he merely feels a pain, communicates that he does not require any assistance. Although this alternative explanation is not entirely implausible, I think it is unlikely to be correct for the following reasons. First, it seems doubtful that a request for help is encoded implicitly in the choice of pain expressions. After all, having pain is one of the most disturbing aspects of life, and the desire to get rid of a pain often very pressing. Thus, I think it is improbable that people have developed this implicit strategy, given how easy it is to communicate the need for help directly. Second, people do not know at a conscious level about this putative communicative practice. However, communicating the need for help is vital for survival and it is therefore unlikely that such important messages are conveyed unconsciously. Finally, this alternative explanation does not rule out my hypothesis that people are less confident about the location and character of pain when the intensity of pain is low. Even if the choice of pain expressions is also a communicative strategy, it looks to be closely linked to people's confidence about their pains. Thus, the observed correlation between intensity of pain and expressions of pain seems to be best explained via people's varying confidence.

Objection (B) targets the second step in my argument for the truth of premise (2). It might be granted that the correlation between the intensity of pain and people's choice of pain expressions is best explained through the varying degrees of confidence that people have about pain. Nonetheless, one can still resist the identification of 'feeling pain' as being introspective and 'having pain' as an objective

report, by pointing out that what holds for the traditional sense modalities does not hold for our awareness of pain. In other words, ‘feeling pain’ and ‘having pain’ mean the same thing despite the fact that people say that they ‘feel a pain’ when less confident and ‘have a pain’ when they are certain about the pain. But why would we use pain expressions so similarly to expressions in the other sense modalities? The objector might then continue to argue that when people make assertions about their pains, they merely mimic the way they use expressions in the traditional sense modalities.³ I do not have a knock-down argument against the possibility of a mimicking effect. However, the very idea that people mimic the way they use expressions in the visual sense, and other modalities, speaks in favour of the view that awareness of pain is regarded as a perceptual affair to which the appearance-reality distinction applies. A broader empirical investigation into different languages should be able to settle this question because it is unlikely that mimicking effects have developed in different languages without any need for doing so.

If my argument is sound, then we are faced with a new tension. Why do people express their pains in a way which is coherent with the existence of an appearance-reality distinction, but analyse the concept of pain (CRP) in a way which rules out the appearance-reality distinction of pain?⁴ Before I close I would like to briefly sketch an explanation for the tension between the seeming validity of (CRP) and our choice of pain expressions. The feeling of pain is usually not just a pure sensation but is accompanied by an affective evaluative component. When people feel pain, they normally consider themselves to be also in a state of dislike. Thus, the seeming absurdity to question (CRP) might not be rooted in the impossibility to distinguish ‘feeling a pain’ from ‘having a pain’ but rather in the impossibility to distinguish ‘feeling something unpleasant’ from ‘having something unpleasant’. We now know that the affective component of pain and the pure sensational experience of pain are dissociated in cases of asymbolia (Dennett, 1978). It therefore would be interesting to investigate whether patients of asymbolia consider (CRP) to have the same force

[3] Anil Gomes pointed out the possibility of a mimicking effect to me.

[4] An anonymous referee indicated to me that besides making appearance judgments when being less confident about a property or an object, we also make appearance statements like ‘it looks red, but I know it isn’t really’ when other evidence contravenes perceptual evidence. It is, however, no objection to my argument that this way of making appearance statements does not seem sensible when it comes to pain. After all, it is exactly because we cannot say ‘I feel a pain in my shoulder, but there isn’t a pain really’ that the paradoxical nature of pain, i.e. the tension between the semantic properties of pain and the conceptual analysis of pain, exists in the first place.

as it has for normal people, and whether unpleasant experiences in the traditional sense modalities, like eating rotten food, also result in an apparent lack of the appearance-reality distinction. However, these questions are beyond the scope of this paper.

5. Conclusion

Is our use of the concept pain paradoxical? Many think it is. The semantic properties of pain expressions and the conceptual role of pain seem to be incompatible. However, in this paper I have challenged the view that the conceptual role of pain really exhibits a lack of an appearance-reality distinction. At the core of this paper is an empirical analysis into our use of the expressions ‘I feel a pain’ and ‘I have a pain’. This analysis demonstrates a correlation between different pain expressions and the intensity of pain. This dependency can be best explained by variations in confidence we have for pains of different intensities. I have furthermore shown that we have good reasons to think that when we ascribe properties to objects when confident about the property, and that when we ascribe properties to our experiences when less confident, we can interpret these ascriptions as introspective and objective, and hence establish that an appearance-reality distinction is applicable to pain.

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Appendix: Methods and Search Statistics

In section 3 I have presented the results of a web-based statistical analysis, comparing the frequency of ‘feeling pain’ expressions with ‘having pain’ expressions for different intensities of pain. Tables 3, 4, and 5 (see below) display the number of search hits on Yahoo Search, Bing, and Google on which the results in section 3 have been established. All search functions were performed on 25 September 2010. A previous analysis on 23 April revealed that the number of search hits when entering a certain phrase are very stable over time across all three search engines. In order to reproduce these results, it is important to keep in mind that the tables display the number of search hits after ‘omitting duplicate hits’. Entering a certain phrase in search engines yields a higher amount of search hits than are uniquely available. Thus, after inserting a certain phrase into a search engine, one would need to check the available search hits by moving to the last available entry until the search engine displays a message of the form ‘In order to show you the most relevant results, we have omitted some entries very similar to the ### already displayed’. Although there are still some duplicate entries that the search engines cannot prevent from being counted, this process greatly reduces the possibility that an occurrence of a phrase on a specific website is counted more than once. Although the three search engines use different search algorithms, it is of course not surprising that the results are very similar. All engines search the same forums, articles, and blog entries. Regarding the corpus of information itself, I was particularly interested to find out, first, the number of search results that are registered on health-related websites, and second, the amount of hits in which pain expressions are further specified by the location of the pain, e.g. when people say that ‘I feel a slight pain’, was location information like ‘I feel a slight pain in my ankle’ provided? For the expressions ‘I feel a slight pain’, ‘I have a slight pain’, ‘I feel a severe pain’, and ‘I have a severe pain’,⁵ the results of this corpus study are displayed in Table 2. It can be quite safely concluded from this study that the majority of pain expressions are found on health-related websites (second column) of which most are designed in a question and answer fashion (health forums, health blogs). Most pain expressions which are not found on health-related websites come from

[5] The study was restricted to these four expressions on the Google search engine, mainly because of the time-consuming nature of this study.

newspaper articles, interviews, and blogs which are not primarily about health. Furthermore, the majority of pain expressions seem to be followed by a more or less detailed description of the pain location (third column). Even if no location information was provided, a more specific description of the situation usually followed, e.g. ‘I have a severe pain when I stretch my arm’, ‘I feel a slight pain that occurs now and then’.

Expressions	On Health Websites	Location Info Provided
‘I feel a slight pain’	84%	76%
‘I have a slight pain’	89%	88%
‘I feel a severe pain’	65%	93%
‘I have a severe pain’	85%	88%

Table 2. Corpus study on the search hits for four expressions. The second column shows the percentage of hits which are on health-related websites. The third column displays the percentage of expressions to which information about the location of the pain is provided.

The statistical analysis of pain expressions is restricted to four attributes of high intensity (major, severe, bad, big) and four attributes of low intensity (minor, small, slight, little). The reasons for the restriction to four attributes each and the selection of these specific attributes are as follows: (1) Pain expressions with the attributes ‘strong’, ‘great’, and ‘huge’ are obvious candidates for a statistical analysis and indeed reflect the same tendency as the other high-intensity attributes, i.e. people say much more often that they have a strong (great, huge) pain than feel a strong (great, huge) pain. However, among the search results are expressions like ‘I have a great pain tolerance’ or ‘I have a strong pain threshold’. These expressions distort the results because they were not aimed at by this analysis; moreover, they are not balanced out because it is not possible to say ‘I feel a great pain tolerance’. Thus, I have excluded these attributes from the study; (2) Other attributes that I have tested for but eventually excluded are: extreme, acute, intense, incredible, tremendous, heavy, ample, grand, high, keen, large, awesome, powerful, vigorous, stark, crass, unbelievable, fierce, smallish, light, petty, petite, low, marginal, slender, minute, tiny, faint, infirm, weak, slim. The main reason for their exclusion is the low number of search hits for most of these attributes and, correspondingly, a statistically less significant overall result; (3) There are less low intensity attributes that yield a significant amount of hits compared to high intensity attributes. I therefore restricted the overall attributes to four each.

A general objection to the validity of this statistical analysis as a whole can be made by questioning the language abilities of internet users.⁶ Many Eng-

[6] This interesting objection and other valuable comments on the methodology of this study were made by an anonymous referee for this journal.

lish⁷ websites are used by people who do not speak English as their mother tongue. Moreover, it seems reasonable to suppose that many of those users participate in English health forums and blogs, and so it is possible that the outcome of my analysis is distorted or even invalid. However, not only does this objection rest on two shaky assumptions, it looks as if the claim cannot be maintained statistically. The first assumption is a favourable comparison of users on the web with users on health forums. Although it is true that many non-natives use English websites, it is less likely that medical advice is sought in a linguistic environment in which one feels less comfortable, e.g. whereas Germans surf onto many English websites, there is a plethora of German health forums to which German speakers can attend. It is plausible to assume that German speakers seek help on German forums unless their language skills in English are very high. The objection furthermore assumes that non-native speakers of the English language are prone not to gain an intuitive hold on the postulated difference between feeling a pain and having a pain. However, even if it is true that many non-natives who browse English websites also use English health forums, and if it is also true that many non-natives do not gain a linguistic feeling for the use of pain expressions, the objection cannot be maintained statistically. Take the example of the ratio between the expressions ‘I feel a severe pain’ and ‘I have a severe pain’. The average health forum user is six times more likely to say that she has a severe pain. If natives use both expressions with equal probability, that would mean that there are around two and half times more non-natives on English health forums than there are speakers with English as their mother tongue — taking the extreme position that non-natives never use the expression ‘I feel a severe pain’. This is statistically speaking extremely implausible.

	‘I feel a...’	‘I have a...’	Ratio	‘feeling a...’	‘having a...’	Ratio
minor pain	18	43	1:2	20	21	1:1
small pain	77	325	1:3	98	45	2:1
slight pain	390	549	1:1	442	223	2:1
little pain	884	951	1:1	998	724	1:1
major pain	8	117	1:15	12	107	1:2
severe pain	72	520	1:7	76	229	1:3
bad pain	58	384	1:6	38	413	1:11
big pain	53	206	1:4	25	45	1:2

Table 3. Search statistics in Yahoo Search. Columns 2, 3, 5, and 6 display the number of search hits with ‘omitted duplicate results’ for different pain expressions. Column 4 indicates the ratio between hits in column 2 and 3, column 7 indicates the ratio between hits from column 5 and 6 to the nearest integer.

[7] In this paragraph ‘English’ and ‘German’ are meant to refer to websites in the English or German language, not websites that are hosted by English or German people.

	'I feel a...'	'I have a...'	Ratio	'feeling a...'	'having a...'	Ratio
minor pain	11	23	1:2	10	18	1:2
small pain	52	150	1:3	54	34	2:1
slight pain	217	273	1:1	234	146	2:1
little pain	336	381	1:1	591	342	2:1
major pain	3	51	1:17	5	53	1:11
severe pain	43	267	1:6	51	180	1:3
bad pain	42	186	1:4	19	241	1:12
big pain	34	108	1:3	23	28	1:1

Table 4. Search statistics in Bing.

	'I feel a...'	'I have a...'	Ratio	'feeling a...'	'having a...'	Ratio
minor pain	28	11	2:1	24	23	1:1
small pain	54	70	1:1	73	28	2:1
slight pain	163	194	1:1	168	96	2:1
little pain	262	272	1:1	418	329	2:1
major pain	5	47	1:9	22	57	1:3
severe pain	51	204	1:4	51	105	1:2
bad pain	51	140	1:3	42	122	1:3
big pain	58	56	1:1	37	36	1:1

Table 5. Search statistics in Google.