Essay on the Philosophy of Language
Vagueness and the sorites paradox

Nudity (women): exposure of nipple(s), pubic area, genitals, or anus. The use of tassles does not constitute nudity.

James Nielson, a lawyer who works closely with Whitehall in the formation of new laws, was part of the legal team tasked with providing the British government with a definition of 'nudity', to be used in the Licensing Act 2003, thus allowing establishments and the law to know with precision the criteria by which they would be categorized. These arbitrary criteria allowed for a clear distinction between lap-dancing establishments and establishments offering other kinds of performance. But is there an objective level where a person's level of exposure moves from not nude to nude? When does a man who is losing his hair officially become bald? At what hour, minute, second does someone become middle aged? How many grains of sand are needed to make a heap? Or, perhaps examples with current socio-political relevance, when are there too many cars on the road, at what point will the erosion of personal liberties be equated with oppression? What do these examples have in common? The idea can be applied to many other predicates such as height, weight, the point when one would consider someone/something as 'old', wealth, and so on.

We could say of all these examples that they are borderline cases. They occur because many concepts, like 'heap', 'nudity', 'bald' and 'tall', are vague concepts. Vagueness is primarily concerned with cases where there is difficulty (impossibility?) in classifying something as one thing or another. Bald or not bald? Tall or not tall? Sufficiently free or insufficiently free? At what point is it one thing and not the other? It has an increasing presence in contemporary computational linguistics, where our increasing interaction with computers and A.I. and our need for computers to be able to respond sensibly to our use of vague terms requires us to develop reasoning behind the use of such terms. The sorites paradox is the name given to a class of paradoxical arguments which result from the use of vague predicates:
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Premise 1: A one ounce elephant is a small elephant.
Premise 2: Adding one ounce to a small elephant cannot make it not-small.
Conclusion: All elephants are small elephants.

Repeating premise 2 eventually forces us to accept the conclusion, a conclusion which is clearly false. Elephants can weigh up to 6000kg. A man with one hair on his head is a bald man. Adding one hair to the head of such a man will not make him not bald. Therefore, all men are bald men. Again, our conclusion is clearly false. But how can we try and deal with this problem?

Our initial response could be to reject premise 1, and state that a one ounce elephant is not a small elephant. But as one ounce is just an arbitrarily chosen weight, with some other chosen number like 0.9 ounces or 1 kg the argument could still go through. Sticking with premise 1, we'd then have to reject completely that there are small elephants. Again though, it doesn't quite satisfy to dismiss the example by rejecting that small elephants exist (Peter Unger is one who adheres to the argument that there is no small elephant, that there is no heap, and that there is no bald). Alternatively, and really our only choice, we could object that premise 2 is not true for all elephants and that at some point adding one ounce would indeed make it not-small. Furthermore, one may accept the conclusion that all elephants are small elephants, insisting that an infinitely heavy elephant is still a small elephant. But, again, this doesn't quite satisfy.

We could start with simply stating the weight, fixing the boundary, at which a small elephant ceases being a small elephant. Say, elephants that weigh less than 4000kg are small elephants and those above aren't. But then what about the elephant that weighs 3999kg? The difference between 3999kg and 4000kg is too insignificant to be used to classify. It matters not at what number this boundary is set at as its arbitrariness will always result in

imprecision. This argument could be rejected on purely philosophical grounds because of this arbitrariness and on also linguistic grounds because it is simply not how we use language (apart from Korean and their agreement on 'tall', of course). A more acceptable boundary could perhaps be to call an elephant small if it is below, say, the average weight of elephants. Still it would remain imprecise in cases where an elephant is just under the average. This argument does not really extend to what number of hairs on a man's head makes him bald. This number is one which we would struggle to even guess.

Here in Korea the idea of being tall is routinely and aggressively pushed by the celebrity obsessed media so far as to have created the actual height one must be over in order to be described as tall: Around 175/176 and above = tall. I often hear my students' state that one of their aims in life is to be 'tall'. In this context, much like in the medical establishment regarding obesity, they have increased the likelihood of a certain statement being true by roughly agreeing on the fixed point when one is thought of as 'tall'. Though, since 'tall' is relative certain statements about someone's tallness will be held as true by Koreans but perhaps not true by non-Koreans. Are there any vague predicates which are universal? Does relativization, even with a fixed boundary, totally eliminate borderline cases? We can imagine cases where a Korean subject is 174cm but has a slight build, say, or broad shoulders, and thus could be considered 'tall', mistakenly, by other Koreans. Imprecision again, remains.

Timothy Williamson and Roy Sorensen are among those who assert that there are indeed fixed boundaries but are necessarily unknowable. Many philosophers think that the standard principals of logic, as used in mathematics, are not applicable to ordinary language and thinking. These principals are based on the idea that when you make a statement it is only true or false, that there are only two possibilities. Many think this doesn't work for vague statements. Saying something is a heap, according to them, needn't be true or false. It might be neither. There might be degrees of truth/falsity, intermediate degrees between absolutely true and absolutely false. Then there's where Williamson and Sorensen sit, where vague language can either be true or false. That is, there is a point where someone is bald, or where someone is tall, but we just can't know which point. Williamson holds that he occupies this stance due to the alternatives that have been proposed to standard logic do a much worse job of handling these paradoxes.

The multi-valued logic approach takes issue with the idea that elephants are either small or not small, with no intermediate. It introduces a third, indeterminate, state. But, again, the initial problem persists as we still have classification difficulty between the three options. How do we differentiate between small and indeterminate?

Alternatively, fuzzy logic introduces yet more categories in which we could classify our elephant, from definitely small to definitely not small, with a whole array of possibilities in between. Three truth-values, four, five, and onwards to infinity. Williamson, an Epistemicist, denounces the fuzzy logic approach thus: Imagine we have two elephants, each identical, both weighing one ounce. We add one ounce to them simultaneously, and we're at the point where we're at the borderline between small and not-small. Fuzzy logic would say that it is half true that one of them is small, the implication being that one is small and the other is not-small, which is a completely false description. It is absolutely clear that if one is one small then so is the other. Other critics reject multi-valued logic on the grounds that it increases the problems of classical logic. We are simply replacing a single defining point between true and false with an infinite amount of defining points between the statements.

Like in the legal realm which actively attempts to avoid sorites paradoxes by the creation of arbitrary criteria, vagueness in the public realm is treated similarly, albeit through more natural means which result in less strict boundaries. Rough agreements are acquired where vague concepts attain a level of relative, generally accepted, truth. It seems to me a preposterous notion that there exists a boundary, a hair, which classifies a man as bald or not-bald. To paraphrase Russell on our aforementioned sorites paradox, there are small elephants and there are not-small elephants, and in between there are elephants where it is not true to say they are either small or not-small. "…The law of the excluded middle is true when precise symbols are employed, but it is not true when symbols are vague, as, in fact, all symbols are."