Prime Model of Sensory Experience

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In this paper I introduce a simple model of sensory experience based on prime numbers.

One property of sensory experience[1], is that one can imagine a being, a sensory oracle, which has access to all possible sensory experiences. If there is a such thing, then any sensory experience that I can have, can also be experienced by the sensory oracle. Reasoning about a such sensory oracle makes sense from the perspective of zen-consistency in Naive Zen Logic[2].

A second property of sensory experience, is that it can be a combination of familiar sensory experiences. For example, if I see red and I see blue, I might one day see both red and blue.

A third property of sensory experience, is that when it doubles in intensity, it does not change qualitatively. This means, I can not in principle know what it is like to see blue in isolation and compare it to see twice the amount of blueness, without having some reference sensory experience at the same time to compare the relative amount of blueness with. With other words, how I can distinguish one sensory experience qualitatively from another, is by the ratios of relative intensity.

The three properties above can be encoded in a simple model that uses prime numbers[3]:

1. The sensory oracle corresponds to enumerating all natural numbers
2. A combination of familiar experiences is a composite number
3. Invariant quality of sensory experience corresponds to factoring out shared prime exponents

It is unknown how the sensory oracle arranges its possible sensory experiences. However, no matter what kind of sensory experience one has, there is a corresponding number in the sensory oracle.

The sensory oracle can also distinguish intensified sensory experiences qualitatively from each other. If I have an experience `x`, then `$x^n$` where `n : ℕ ∧ (> 0)` are ambiguous to `x`. To model this ambiguity, I pick the smallest number as representative of some class of ambiguous sensations.

These numbers, which are qualitatively different by introspection,
form a set of natural numbers in the sensory oracle:

qualitative_sensation := \(x : ℕ) = ¬∃ n : ℕ, y : ℕ { (n > 1) ∧ (y^n == x) }

qualitative_sensation : ℕ → 𝔹

The sequence of numbers below 100 where `x : [qualitative_sensation] true`:

2, 3, 5, 6, 7, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, 26, 28, 29,
30, 31, 33, 34, 35, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48,
50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 65, 66, 67, 68, 69,
70, 71, 72, 73, 74, 75, 76, 78, 79, 80, 83, 84, 85, 86, 87, 88, 89,
90, 91, 92, 93, 94, 95, 96, 97, 98, 99

Different models of sensory experience can be classified relative to this simple model,
e.g. whether all prime base exponents are finite (finite relative intensity resolution),
or e.g. whether the set of possible primes is finite (finite possible authentic sensory experiences).

References:

[1] “Sense data”
Wikipedia
https://en.wikipedia.org/wiki/Sense_data

[2] “Naive Zen Logic”
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https://github.com/advancedresearch/path_semantics/blob/master/papers-wip/naive-zen-logic.pdf

[3] “Prime number”
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https://en.wikipedia.org/wiki/Prime_number