GeohashPhrase™ Overview

the — young — dog — near the — kicks — fancy — with a — hydrant — soft — trombone

3,113 mi (5,009km) sq

Front Door of Starbucks in Las Colinas (Irving), TX

9 vg 51 eg d6 bb qz

502 ft (153m) sq
3/16 in (5mm) sq
3 mi (4,892m) sq
6 in (15cm) sq
97 mi (157km) sq
16 ft (5m) sq

Synonym for "young dog"

crowbar

Key
adjective
noun
verb
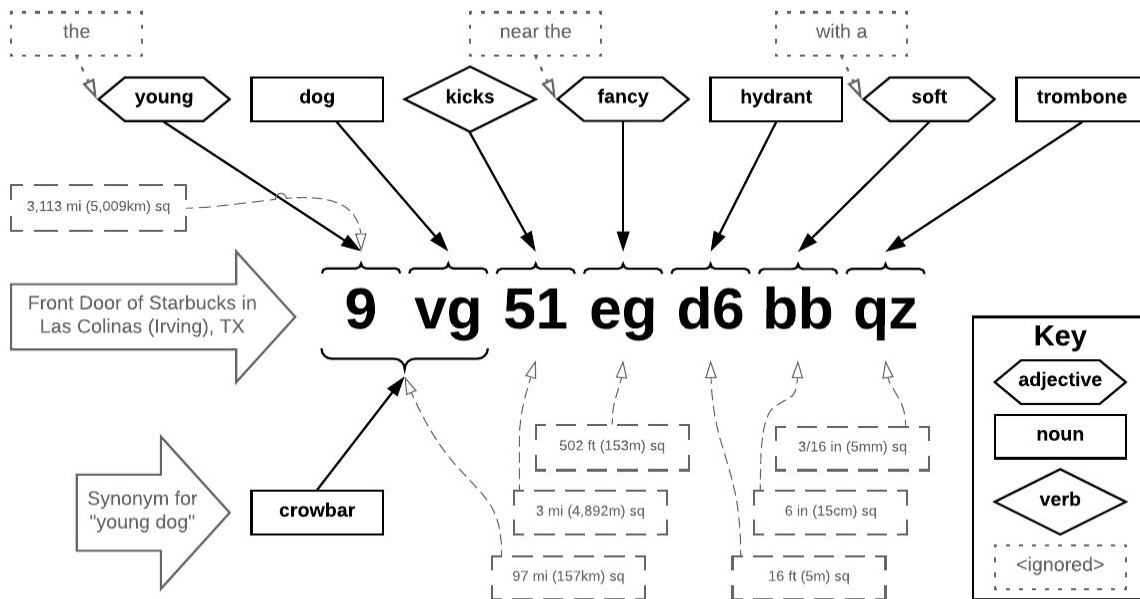<ignored>

The Critical Distinctions:

1. **Human-vs-Computer** - Optimized for human cognition as opposed to a computer database identifier, below are the different ways the GeohashPhrase has been optimized to be robust in the face of faulty and forgetful human recall.

   a. Sentence: The structure of the returned words form an archetypal sentence; i.e. subject+action+direct-object. This structure aligns with the way the human brain has evolved to record and retain spoken (and later, written) information.

   b. Simple Words: The GeohashPhrase parser only keeps adjectives, nouns and present tense verbs. The parser ignores all words which are not in its dictionary; i.e. when present in the phrase, the parser discards all articles, conjunctions, determiners, prepositions, numerics, pronouns, adverbs, and exclamations.

   c. Small vocabulary: And the total word count is less than 10,000. This is smaller than the average word count of an English speaker, as both natural and English as a Second Language (ESL), of 12,000 words.

   d. Pluralization Neutral: The plural forms of both nouns and verbs are treated as synonyms for their singular form. This means "dog" may be replaced with "dogs", and/or "kicks" with "kick" (in the above diagram) and the resulting Geohash (and the location it specifies) will be identical. Given the sentence in the above

diagram, this means all of the following sentences result in the same Geohash value:

    i.   young dog**s** kick fancy hydrant**s** soft phone**s**
    ii.   young dog kicks fancy hydrant**s** soft phone**s**
    iii.   crowbar**s** kick soft hydrant fancy phone**s**
    iv.   etc.

    e. <u>Word Ordering Neutral:</u> The GeohashPhrase words may be reordered arbitrarily. Given the sentence in the above diagram, this means all of the following sentences result in the same Geohash value:

    i.   young soft dog kicks fancy hydrant phone
    ii.   young fancy phone kicks soft hydrant dog
    iii.   fancy phone**s** kicks soft hydrant crowbar**s**
    iv.   etc.

2. **Telescopic Granularity** - The Geohash mechanism uses a nesting strategy to allow for increasing precision by adding characters. This enables near infinite levels of specification refinement (far beyond 3/16ths of an inch, or 5mm). The GeohashPhrase seamlessly integrates with this telescopic nature of the Geohash. Using only 3 words, a 500-foot square may be specified. At 4 words, a 16-foot square is circumscribed. This means that the business use case drives the number of words needed to capture sufficient resolution of the resulting Geohash.

3. **As A Location Based Authentication Factor:** By having many actual GeohashPhrases able to point to the same Geohash value, i.e. the numerous permutations of using synonyms and/or pluralizations for words combined with freely reordering the words combined with any number of "ignored" words (as salt), a GeohashPhrase can be used as a resilient and robust "location based authentication factor". This can replace asking for a person to indicate within what city they were born and storing it, with asking the person to select a specific GeohashPhrase matching a location. Now, even if a scammer/hacker knew the person's place of birth, they would have to know the number of words used, the exact words in the phrase (including the "ignored" words), and then the specific ordering to successfully pass this authentication factor validation check.

<u>Glossary of Terms:</u>

- **Geohash** - An excellent high speed exact character encoding of a longitude+latitude value. It is the preferred method of storing a database value, but is terrible for human consumption and recall. <u>Here is a 5m Youtube video</u> which visually describes it using Google Maps.

- **GeohashPhrase™** - A method for encoding a Geohash value using natural human language in both individual words as well as facilitating an actual valid complete sentence.