MAKAH BOTANICAL NOMENCLATURE — AN ANALYSIS OF TAXONOMY AND MEANING

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1.0 INTRODUCTION

The Sapir–Whorf hypothesis, which posits the relationship between the cognitive systems and the language of a particular group, has been substantiated by numerous studies (e.g., Mathiot 1962; Whorf 1974; Leap 1977). As is true in other languages, Makah terms for objects, including plants, reflect principles of classification native speakers use to judge reality. By examining these principles, Makah plant taxonomy and botanical nomenclature is revealed in a systematic fashion indicating the salient features operating in Makah plant classification. This approach indicates not only *what* the Makah call plants, but *how* the language represents plants within an environmental and utilization context.

The Makah Indian Nation currently occupies a 44 square mile reservation located on the most northwestern point of the Olympic Peninsula, Washington. Of the 811 Makah living on the reservation, only 21 are native speakers of the Makah language. For an overview of the Makah people and language, see Renker and Gill (1985b).

Sound ethnophytotaxonomic research should be based on comprehensive knowledge of the local flora, plant communities, and habitats exploited by the local people. Gill (1983) extensively documented the flora and vegetation of traditional Makah territory, and included data on other environmental parameters of the area. We will not recapitulate these findings here.

Until Gill's (1983) research on Makah ethnobotany, few data were available concerning plant names, and essentially no data were available concerning Makah phytotaxonomy. James G. Swan (1859-1864, 1870) made the first extensive notes on Makah plant names and uses. Other important sources of Makah botanical nomenclature include Densmore (1939) and Gunther (1945). Additional data were published by Curtis (1916) and Waterman (1920). Goss, Ides, and Ides (1974) compiled a list of Makah plant and animal terms, but this paper was never published and is not readily accessible to researchers. Jacobsen (1969, 1971, 1979) has included several plant terms in his papers on the Makah language. To date, ethnobotanical studies including a large quantity of linguistic data have been published for two other Nootkan peoples, the Nitinaht (Turner, Thomas, Carlson, and Ogilvie 1983) and the Hesquiat (Turner and Efrat 1982). The basic principles of naming plants and of taxonomy

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are generally the same for the three languages, thus a detailed comparison will not be presented here. Gill (1983) integrated all previously published and known archival data on Makah ethnobotany and provided an extensive collection of new data based on detailed research with the Makah people during 1979–1983, as well as analysis of archaeobotanical remains from the Ozette Village Site at Cape Alava. Gill's work documented a relationship between the linguistic forms of Makah botanical nomenclature and the cultural role of the plants in traditional Makah society as well as the naming conventions used for many of the plant taxa introduced after European contact. Gill and Renker (1984) supported these distinctions, and expanded on the linguistic evidence supporting ethnobotanical features of Makah plant nomenclature and classification. This paper presents additional data concerning Makah ethnophytotaxonomy and botanical nomenclature.

2.0 METHODOLOGY

The methods used for the data collection in this study are those of Norton and Gill (1981). These include, when possible, field trips with consultants, tape recording of interview sessions, collection of plant voucher specimens, and cross-checking data during other interview sessions with the same consultant and with other consultants. Most of the data were collected during interviews with Makah consultants on the Makah Reservation during April 1979 through April 1985. When it was not possible to make actual collecting trips into the field with consultants, fresh plant materials were used during interviews whenever possible. Pressed herbarium specimens were used only when fresh materials were not available. Most plant materials from interviews sessions were pressed and retained as herbarium vouchers specimens.

We conducted interviews for this study in two stages. Initial datasets emerged from sessions in which interviewer elicitation was in English, and resource person response was in Makah. Data affirmation occurred in the reverse. We presented the data for affirmation in Makah so that speakers would correct the phonetic and phonemic subtleties that we may not have detected in the original elicitations. This process is the most productive one we use currently, and was refined by us over a period of six years work (Gill and Renker 1984).

3.0 MAKAH BOTANICAL NOMENCLATURE

Like most American Indian languages, Makah depends heavily on intricate systems of surface level, cross referencing morphology to convey meaning. This structural preference is commonly referred to as a polysynthetic orientation, after Sapir (1921). A linguistic structure of the polysynthetic type requires dissection of a word or utterance into constituent elements in order to reveal all items which contribute to the ultimate meaning of the speech element. For the purposes of this paper, the discussion centers on Makah words, a word being a non-predicated speech act marked by two surface junctures.

3.1 Makah Word Construction

All Makah words are a product of the combination of from one to twelve morphemes arranged in a specific order. The morpheme occupying the initial position is the stem; the remaining morphemes are affixes. Like other Nootkan languages, Makah utilizes suffixation as the primary morphological process; analysis has revealed no prefixes. Reduplication is also a fundamental morphological process in Makah, and has a considerable role in the formation of repetitive and iterative aspects, plurals, neologisms, and what the Makah call "looks like" words, i.e., resemblance terms (Gill and Renker 1984; Jacobsen n.d.). Production of Makah words, therefore, results from the semantic and positional interaction of these elements. This feature of the language allows for the creation of new words through morphemic processes as the need arises.

Although morphophonemic processes alter the surface structure drastically in certain environments, all Makah constructions follow a number of rigid syllabic and combinatory rules:

(1) No syllable may begin with a vowel.
(2) No vowel clusters are attested anywhere in the language.
(3) No consonant clusters may appear at the beginning of a syllable, while they are attested in other environments.
(4) No contiguous /ʔ/ are permitted.

3.2 Stem Intensifiers

After these rules are observed, the resultant surface structure exhibits a preferred CV or CVC syllabic pattern which is common to the other Nootkan languages. Makah also appears to utilize stem extenders (Haas 1972; Renker and Gill 1984), post-velar consonants which intensify the semantic intent of a stem. A CVC stem which changes to a CVCC stem possesses an intensified meaning in the latter form. For example:

/λit-/	'spread out'	/λitq-/	'explode'
/but-/	'cut'	/butq-/	'amputate'
/pit-/	'fit together'	/pitq-/	'jam together'
/sit-/	'split'	/sitx̌-/	'tear'
/q̓at-/	'heal'	/q̓atx̌-/	'shrink, shrivel'

Examples of this formation are found in both Makah botanical and zoological nomenclature:

1. ƛ̓ʷičkaꞏpiẋ̌ 'Small sea urchin' (*Strongylocentrotus* sp.)
   ƛ̓ʷič - k - aꞏ - (a)piẋ̌
   spear or prick - intensifier - continuous marker - spherical distribution marker

2. ƛ̓učkaꞏpiẋ̌ 'Purple sea urchin' (*Strongylocentrotus purpuratus*)
   ƛ̓uč - k - aꞏ - (a)piẋ̌
   action of hooking - intensifier - continuous marker - spherical distribution marker

3. šačkaꞏpiẋ̌ 'Wild gooseberry [fruit] ' (*Ribes divaricatum*)
   šač - k - aꞏ - (a)piẋ̌
   sharp - intensifier - continuous marker - spherical distribution marker

4. šačkaꞏbap '"Vild gooseberry [bush]' (*Ribes* sp.)
   šač - k - aꞏ - bap
   sharp - intensifier - continuous marker - plant species

3.3 Cultural Perceptions: Stems Plus Affixes of Shape, Location, and Distribution

Many Makah plant names derive from some perceived quality of the taxon, a principle that also holds in Makah zoological nomenclature (Renker and Gill 1985a,b). Shape, locational, and distributional affixes play an important role in the formation of many of these terms. A morphological study of Makah biological terms found in Renker and Gill (1984) paid particular attention to the perceptual

categories of shape and space as discriminators in the Makah biological lexicon. To illustrate, we can look at the Makah words for several biological entities using the stem /λ̓iẋ̌-/ 'red':

5. λ̓iẋ̌iꞏʔaqλbap 'Yew' (*Taxus brevifolia*)
   λ̓iẋ̌ - iꞏ - ʾaqλ - bap
   red - epenthetic vowel - inside - plant species

6. λ̓iẋ̌aꞏʔaq̓aɬ 'Wild cherry' (*Prunus* sp.)
   λ̓iẋ̌ - aꞏ - ʔaq̓aɬ
   red - continuous marker - on the back of (in reference to the bark)

7. λ̓iλ̓iꞏẋ̌adiɬ 'Carrot' (*Daucus carota*)
   λ̓i - λ̓iꞏẋ̌ - a - diɬ
   reduplication - red - epenthetic - along the length of

8. λ̓iẋ̌iꞏb 'Woodpecker'
   λ̓iẋ̌ - iꞏ - ba
   red - epenthetic vowel - thing

9. λ̓iλ̓iꞏẋ̌iꞏyiɬ 'White-crested cormorant' (probably *Phalacrocoraz auritus*)
   λ̓i - λ̓iꞏẋ̌ - iꞏ - yiɬ
   reduplication - red - epenthetic vowel - throat location

10. λ̓iλ̓iẋ̌saʔaɬ 'Giant chiton' (probably *Cryptochiton stelleri*)
    λ̓i - λ̓iẋ̌ - saʔ - ʾaɬ
    reduplication - red - - on the surface of

11. λ̓iẋ̌aꞏpiẋ̌ 'Red snapper' (*Sebatas ruberrimus*)
    λ̓iẋ̌ - (aꞏ)piẋ̌
    red - spherical distribution marker

Notice that in examples 5 - 11 the salient characteristic featured in each name is the color red. The location or distribution of the color is the discriminating factor in the respective terms, and the well-developed category of Makah locatives is primarily the marker of these distinctions.

Several stems can be used with the same locative affix to designate different taxa. For example, we find a series of plant terms where a stem is combined with the spherical distribution affix /-(a)piẋ̌-/ to produce names for various fruits. In addition to example 3, above, we find:

12. ciẋ̌apiẋ̌ 'crab-apple' (*Pyrus fusca*)
    ciẋ̌ - apiẋ̌
    sour - spherical distribution marker

13. hapaꞏpiẋ̌ 'Wild currant' (*Ribes bracteosum* and *R. laziflorum*)
    hap - aꞏ - (a)piẋ̌
    hair - continuous - spherical distribution

14. ƛ̓akyicapiɬ 'salal [fruit] (*Gaultheria shallon*)
ƛ̓akyic - apiɬ
purple - spherical distribution

15. χ̓i·daqalpiɬ 'Wild currant' (*Ribes bracteosum* and *R. laxiflorum*)
χ̓i·daq - aɬ - piɬ
fog/smoke - on the surface of - spherical distribution

Another important construction used for plant names combines a stem with the affix /–'aqλ–/ 'inside'. Some examples include:

16. bubuƛ̓ʷaqλ 'Bunchberry' (*Cornus unalaschkensis*)
bu - bukʷ - 'aqλ
reduplication - gravel - inside

17. č̓ač̓a·qλ 'term for both Stonecrop (*Sedum* sp.) and Sea sac (*Halosaccion glandiforme*)'
č̓a - č̓a· - a· - 'aqλ
reduplication - water - continuous - inside

18. č̓ič̓idič̓aqλ 'Cherries' (*Prunus* spp.)
ti - č̓idič - 'aqλ
reduplication - stones - inside

19. x̌ux̌uyaqλ 'Blue huckleberry [fruit] (*Vaccinium* spp.)
x̌u - x̌uy - 'aqλ
reduplication - splinter - inside
(*cf.* /x̌ux̌uyaqλbap/ 'blue huckleberry plant' and
/x̌ux̌uyaqλduks/ 'I have a splinter [in my hand] ')

Several other locative affixes are used in plant names, although not as frequently as /–(a)piɬ–/ and /–'aqλ–/. In addition to examples 6 and 7 above, we provide the following examples:

20. q̓uq̓u·skad(i)ɬ 'Salmonberry sprouts' (*Rubus spectabilis*)
q̓u - q̓u·s - ka - diɬ
reduplication - prickly - generic locative - along the length of

21. qalupqi· 'Nettles' (*Urtica dioica* spp. *gracilis* var. *lyallii*)
qal - up - qi·
eyes - open - on top of (refers to blisters caused by nettle stings)

22. p̓ap̓ʔes 'Cranberries' (*Vaccinium oxycoccus*)
p̓a - p̓a - ʔes
reduplication - scatter - on the ground

23. šuč̓as 'Tree' (Life form term)
šuč - 'as
five - on the ground

24. č̓iči·yas 'Pacific blackberry' (*Rubus ursinus*)
č̓i - č̓i·ɬ - 'as
reduplication - flexible - on the ground (refers to viney habit)

3.4 Unanalyzable Plant Names

Several Makah plant terms are at present unanalyzable into constituent segments having semantic value. Most of these taxa were economically or culturally important in traditional Makah society. For example:

25. cikyey 'Red elderberry' (*Sambucus racemosa* var. *arborescens*)
26. hu·ba·q 'Cow parsnip' (*Heracleum lanatum*)
27. kʷa·dis 'Camas' (*Cammasia quamash*)
28. lu·luxʷac 'Thimbleberry' (*Rubus parviflorus*)
29. łe·ʔišu·kʷ 'Red cedar' (*Thuja plicata*)
30. λičsap 'Pacific cinquefoil' (*Potentilla pacifica*)
31. qakwey 'Salmonberry' (*Rubus spectabilis*)
32. tibu·t 'Skunk cabbage' (*Lysichitum americanum*)

3.5 The Resemblance or "Looks Like" Construction

Another formation which plays an important role in Makah botanical nomenclature is the –ƛ̓uk(ʷ)– construction. When accompanied by an initial reduplication of the first CV- sequence, this morphemic arrangement translates to "looks like" or "resembles" in English. Common in Makah botanical nomenclature, this construction is generally used for plant taxa of low economic importance and for non–native species. "Looks like" terms are often used for taxa introduced after the arrival of Euro–American settlers. (Species preceded by a star are not native to the area.)

33. ciciyapuxʷsƛ̓ukʷ 'term used both for Mushrooms and for Black–caps (*Rubus leucodermis*)'
ci - ci(k)ya·puxʷs - ƛ̓ukʷ
reduplication - hat - looks like

34. qaqawaš̓ƛ̓ukʷ 'Raspberries' (**Rubus* spp.)
qa - qawaš - ƛ̓ukʷ
reduplication - salmonberry - looks like

35. ʔiʔi·x̌iq qaqawaš̓ƛ̓ukʷ 'Cut-leaf blackberry' (**Rubus laciniatus*)
ʔiʔi·x̌ʷ - *iq qaqawaš̓ƛ̓ukʷ
big - article affix looks like salmonberries

36. x̌ix̌i·cbuqƛ̓ukʷ 'Goat's–beard' (*Aruncus sylvester*)
x̌i - x̌i·cbu - q - ƛ̓ukʷ
reduplication - herring eggs - plant - looks like

3.6 The Affix /–bap–/

The affix /–bap–/ 'species of plant' is, as expected, found throughout the corpus of Makah botanical nomenclature. Often the word used for a fruit or a taxon in a general sense can be affixed with /–bap–/ when the speaker wants to refer specifically to the *plant* or the taxon as a whole. /–bap–/ may be added to the terms in examples 12, 14, 16, 19, 27, and 28, for instance, with no other modifications made to the root word. In the case of example 22, /p̓ap̓ʔes/, the addition of /–bap–/ changes the meaning from 'cranberries' to 'Indian tea plant' (*Ledum groenlandicum*). In many cases, however, the addition of /–bap–/ reveals the presence of other linguistic processes as well. For example:

37.	qakwey	qakwaš̓bap	'Salmonberry' (*Rubus spectabilis*)
38.	cikyey	cikyaš̓bap	'Red elderberry' (*Sambucus racemosa* var. *arborescens*)
39.	hisi·ʔa·d	hisi·ʔatq(a)bap	'Red huckleberry' (*Vaccinium parvifolium*)
40.	yayaxa·d	yayaxatq(a)bap	'Evergreen huckleberry' (*Vaccinium ovatum*)

Sometimes the name for a plant is formed by attaching /–bap–/ to a stem that indicates a cultural association of the plant with a particular animal or use. For example:

41. čaq̓atq(a)bap — 'Crowberries' (*Lonicera involucrata* var. *involucrata*)
čaq̓at - q - bap
crow - plant - plant species

42. wa·q̓itbap — 'Horse–tail' (*Equisetum* sp[p].)
wa·q̓it - bap
frog - plant species

43. ha·ʔaɬbap — 'Devil's–club' (*Oplopanax horridum*)
ha·ʔaɬ - bap
bass fishing - plant species

44. salaxa·ɬbap — 'Cat–tails' (*Typha latifolia*)
salaxa·ɬ - bap
referring to a type of mat made from cat–tail leaves - plant species

45. č̓u·dʔaxbap — 'Bulrushes, tules' (*Scirpus acutus* and *S. validus*)
č̓u·dʔax - bap
a type of mat made from tule leaves - plant species

Very occasionally the stem of a plant name has no known meaning without the /–bap–/ affix. For example:

46. λ̓aka·bap — 'Hemlock' (*Tsuga heterophylla*)
47. q̓"axsa·bap — 'Red alder' (*Alnus rubra*)

In contrast to these examples, several Makah plant terms apparently never take the affix /–bap–/. These are of two types. The first is exemplified by the Makah term for nettles, /qalupqi·/. The second category are of the "looks like" construction (examples 33–36).

3.7 Miscellaneous Forms

Several other word constructions occur in Makah botanical nomenclature. One construction sparsely scattered throughout the corpus consists of a stem with the affix /–tap–/, which approximates the meaning of the English word 'thing'. As far as is known, the plant terms following this pattern do not take the affix /–bap–/. Some examples include:

48. k̓o·xtap — 'Clover' (*Trifolium*)
k̓o·x - tap
suck - thing

49. xixitap — 'Licorice fern' (*Polypodium glycyrrhiza*)
xi - xi - tap
reduplication - crawling - thing (in reference to the rhizomes)

Unlike the zoological corpus where the iterative formation is commonly used in animal names, only one plant term is known having this construction.

50. p̓aca·p̓acš — 'Soap–berries' (*Shepherdia canadensis*)
p̓ac - a· - p̓ac - š
reduplication - epenthetic - foam - iterative

4.0 MAKAH PHYTOTAXONOMY

Plant classification systems of aboriginal peoples are not, in general, well documented. Although many studies on the Northwest Coast have included lists of plant terms and uses, only five (Gill 1983; Gill and Renker 1984; Turner 1984; Turner and Efrat 1982; and Turner, Thomas, Carlson, and Ogilvie 1983) provide significant information on ethnophytotaxonomic systems. Berlin, Breedlove and Raven (1974) have identified six taxonomic levels, which they term "taxonomic ethnobiological categories", that appear to be universal in all languages. They are, in descending order, Unique Beginner, Major Life Form, Intermediate Taxa, Generic Taxa, Specific Taxa, and Varietal Taxa. Readers desiring more information on this topic are referred to Berlin, Breedlove and Raven (1968; 1974) and Turner (1974).

4.1 Unique Beginner

Makah contains no independent term inclusive of all plants, although this category is conceptually recognized, and is essentially equivalent to the English folk concept of "plant". This concept may have developed in the post contact period. However, linguistic evidence strongly suggests a category more or less equivalent to terrestial plants (vascular plants, probably bryophytes, and some lichens) existed in Makah prior to Euro-American contact. In Makah, the affix /–bap–/ conceptually indicates terrestial vascular plants. This is generally equivalent to the Nitinaht allomorphs /–apt–/ and /–pat–/, which vary in accord with the preceding phonetic environment. The Westcoast equivalent is /–mapt–/. On the Pacific Northwest Coast, Kwakwala and various Salishan languages also have affixes that seem to indicate "plant" (Turner and Efrat 1982).

4.2 Major Life Form

Makah apparently recognizes four major botanical life forms. In terms of constituent taxa, the largest of these is /λ̓aqap/. /λ̓aqap/ indicates herbaceous plants, and functions as a broad life form category which includes /p̓uʔup/ 'mosses and moss-like plants' as well as herbaceous vascular plants.

Other major life form categories in Makah are /šuč̓as/ 'tree', /q̓u·č̓aqtup/ 'fleshy fruit', and /č̓ayupsi·/ 'seaweed'. It should be noted that the life form categories are not always mutually exclusive. /cixapixbap/ 'crab–apple tree', for example, can be classified either as a /šuč̓as/ 'tree' or /q̓u·č̓aqtup/ 'fleshy fruit', depending on the perception of the speaker and the communicative context.

4.3 Intermediate Taxa

There are several intermediate taxonomic categories in Makah. These categories tend to be informal and some are not attested linguistically, but are recognized conceptually. Thus their existance, as currently defined, cannot be substantiated for pre-contact times, although intermediate taxa undoubtedly existed. In Makah, /p̓uʔup/ 'mosses' is apparently an intermediate taxon subordinate to /λ̓aqap/, although in Nitinaht /p̓uʔup/ functions as a major life form category.

Some Makah speakers use the term /pile·pile·bap/ for ferns in general, whereas others state that no general term exists for this group of plants. /pile·pile·/ is the Makah generic for swordfern (*Polystichum munitum* var. *munitum*), and is also the name for the game of endurance that requires a player to hold his/her breath until he/she pulls all the pinnae from the leaf rachis while saying /pile·/ for each one.

At present there is a tripartite categorization of vegetal foods in Makah: fruits, roots, and sprouts. Generally these categories are unmarked linguistically. An apparent exception is the Makah affix /–da–/ 'a species of fruit'. /–da–/ is rare in the language at present, and is attested in two terms, /hisi·ʔa·d/ 'red huckleberry' (*Vaccinium parvifolium*), and /yayaƛa·d/ 'evergreen huckleberry' (*Vaccinium ovatum*).

4.4 Generic Taxa

The majority of Makah plant names reside in this category, similar to English folk taxa such as 'maple', 'raspberry', 'apple', 'lettuce', etc. Most of these terms show a one–to–one correspondence with botanical species. As has been demonstrated earlier in this paper, these names can take several forms. Some terms, especially those applied to culturally unimportant or introduced species, may be used for two or more, almost always closely related, botanical species. For example, /hapa·pik̓/ may apply to either *Ribes bracteosum* or *R. laxiflorum*. If a particular botanical species has a high cultural significance, several names often apply, each referring to a particular stage of growth or to a specific plant part. A good example are the various Makah terms for salmonberry (*Rubus spectabilis*):

51.	qakwaš̓bap	'Salmonberry plant'
52.	qakwey	'Salmonberry fruit'
53.	q̓uq̓u·skad(i)ɬ	'Salmonberry sprouts'
54.	qulu·l	'Young, unripe salmonberry fruit'
55.	č̓a·wick̓ey	'Over–ripe salmonberry fruit'
56.	kʷ̓a·sukʷ	'Salmonberry stems when they turn woody'

4.5 Specific and Varietal Taxa

Specific taxa are very rare in Makah, and probably none existed in pre-contact times. Today this taxonomic level is used to distinguish introduced species from each other and from similar indigenous species. For example, /ʔiʔi·xiq qaqawaš̓kukʷ/ is used for cut–leaf blackberries to distinguish them from /qaqawaš̓kukʷ/ 'raspberries'. No varietal categories are attested in Makah.

5.0 CONCLUSIONS

Makah botanical nomenclature can be categorized based on two different principles: (1) linguistic structure of the term or (2) the contextual or behavioral information which is communicated by the term. Whereas the first method clearly reveals certain linguistic patterns that speakers prefer for botanical nomenclature, the second approach is especially useful for those terms not falling into a word class defined by a recurrent linguistic structure or morpheme category. In both cases, a salient feature

of the plant is isolated and described, but the feature is more likely to be a Makah cultural association if the term falls into the last category.

It is profitable now to contrast and compare Makah botanical and zoological nomenclature. The immediate difference is the lack, in zoological nomenclature, of a suffix indicating that a biological unit is an animal. The suffix /–bap–/ is found throughout the botanical corpus, and indicates that an item is a plant of some kind. The zoological terms often exhibit the iterative construction which, with one exception, is completely absent in botanical nomenclature. This fact makes a great deal of sense when one considers the basic contrast between plants and animals: plants are generally immobile and animals usually can exhibit numerous patterns of actions. It is also noteworthy that although plants may be named for their cultural association with a particular animal, no animal terms are known that have been derived from a plant name. Essentially, plants can be named for their physical attributes, cultural association, or the manner in which the plant is used. As with animals, plants are sometimes given names that refer to habitat preferences, but this is an infrequent pattern.

Makah generic taxa are conceptually the most stable and clearly marked. Although the concept of "plant" is concrete, the precise circumscription of this taxonomic level is not always crystal clear. (A situation that is also true among professional botanists.) Major life forms are more fluid categories, and their constituent taxa vary somewhat depending on the perceptions of the speaker and the communicative context. As would be expected, intermediate taxa are the least stable of all. To a large extent this is because these taxa are not linguistically marked, and thus subjected to a large amount of interpretation depending on the individual perceptions of each speaker.

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