*The Sapir-Whorf hypothesis, first articulated in the 1930s and 40s, claims that people’s ability to perceive the world depends on the language that they speak. Evaluate the accuracy of this claim in light of more current experimental research.*

**Essay 1**

The hypothesis of linguistic relativity, part of relativism, also known as the Sapir–Whorf hypothesis, or Whorfianism is a principle claiming that the structure of a language affects its speakers' world view or cognition, and thus people's perceptions are relative to their spoken language. The principle is often defined in one of two versions: the strong hypothesis, which was held by some of the early linguists before World War II, and the weak hypothesis, mostly held by some of the modern linguists.

The strong version says that language determines thought and that linguistic categories limit and determine cognitive categories, while the weak version says that linguistic categories and usage only influence thought and decisions.

The principle had been accepted and then abandoned by linguists during the early 20th century following the changing perceptions of social acceptance for the other especially after World War II. The origin of formulated arguments against the acceptance of linguistic relativity are attributed to Noam Chomsky.

Whorf's hypothesis was largely based upon a close examination and extensive study of the Hopi Indian language. During earlier years, Whorf published a number of essays in which he analyzed various linguistic aspects of Hopi. For example, a work called “An American Indian model of the universe” (1936) explores the implications of the Hopi verb system concerning the conception of space and time.

In the course of his research, Whorf noticed that Hopi and some other languages (Hebrew, Aztec, and Maya) were built on a different plan from that of English and many other languages which he called SAE (Standard Average European) languages. He discovered several significant features differentiating Hopi from SAE languages that led him to the idea of linguistic determinism.

For example, Hopi is a ‘timeless’ language, whose verbal system lacks tenses. Its assessment of time is different from SAE linear temporal view of past, present, and future. This varies with each observer:

"The timeless Hopi verb does not distinguish between the present, past and future of the event itself but must always indicate what type of validity the speaker intends the statement to have."[5]

Hopi time is non-dimensional and cannot be counted or measured in a way SAE languages measure it, i.e. the Hopi will not say “I stayed six days,” but “I left on the sixth day.” What is crucial in their perception of time is whether an event can be warranted to have occurred, or to be occurring, or to be expected to occur. Hopi grammatical categories signify view of the world as an ongoing process, where time is not divided into fixed segments so that certain things recur, e.g. minutes, evenings, or days. The linguistic structure of SAE languages, on the other hand, gives its speakers a more fixed, objectified and measurable understanding of time and space, where they distinguish between countable and uncountable objects and view time as a linear sequence of past, present, and future.

Whorf argues that this and numerous other differences imply a different way of thinking. Since thought is expressed and transmitted through language, it follows that a differently structured language must shape thought along its lines, thus influencing perception. Consequently, a Hopi speaker who perceives the world through the medium of his language must see reality through the patterns laid down by its linguistic structure.

Similar to the claims that Hopi prevents its speakers from thinking about time, some linguists allege that the Pirahã language prevents its speakers from thinking about quantity and numbers.[6][13] The speakers of Pirahã are also, for the most part, incapable of math.

Peter Gordon has recently taken an interest in studying the speakers of the Pirahã language. He has conducted many experiments on a small amount of these speakers. Gordon highlights eight experiments involving seven Pirahã speakers. Six of the experiments were all related in that the speakers were instructed to match groups of items to the correct number displayed elsewhere. The other two experiments had them recall how many items had been placed into a container, and lastly differentiate between various containers by the number of symbols that were pictured on the outside. Gordon found that the speakers of Pirahã could distinguish between the numbers one, two, and three relatively accurately, but any quantity larger than that was essentially indistinguishable to them. He also found the larger the number involved, the worse the performance. Gordon concluded that speakers of Pirahã are restricted to thinking about numbers through symbols or other representations. These speakers think of things as small, larger, or many.[14] The speakers showed no ability to learn numbers, even after being taught in the Portuguese language for eight months, not one individual could count to ten.[15]

Daniel Everett found that the Pirahã language also lacks recursion or nesting which was previously thought to be a feature of all languages. This opens up the possibility that the thoughts of the speakers are influenced by their language in other ways as well. Although whether or not Pirahã lacks recursion is a topic of intense debate

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In conclusion, this essay has shown that the Sapir Whorf hypothesis is supported by evidence from Hopi and Piraha but it is not accepted by linguists today.

**Essay 2**

The Sapir-Whorf hypothesis is a claim first put forward by Edward Sapir and Benjamin Lee Whorf in the mid-twentieth century. Both argued that humans perceive the world in ways that reflect their linguistic experience. Because ‘the language habits of our community predispose certain choices of interpretation’ (Sapir, quoted in Whorf 1939), humans do not all observe the same properties of the world. They cannot be purely impartial in their descriptions of nature (Whorf 1940/1956a), because ‘users of markedly different grammars . . . are not equivalent as observers, but must arrive at somewhat different views of the world’ (Whorf 1940/1956b, pg. 221). This view has more recently come under criticism, but it is not entirely without merit. Experimental evidence in color perception and verb agentivity has shown repeatedly that the Sapir-Whorf hypothesis is right. It may overstate matters, but it is nevertheless the case that users of different linguistic systems vary in their perceptual capabilities in ways that reflect their languages’ structure.

Consider first the relationship between a language’s color vocabulary and its speakers’ ability to perceive color. Winawer et al (2007) conducted an experient to compare English and Russian speakers’ sensitivity to blue. These two speaker groups were compared because English has only one basic color word for blue, while Russian has two: *sinij*, for dark blue, and *goluboj*, for light blue. If these linguistic differences affect listeners’ ability to perceive color, the authors predicted, then English speakers should be less sensitive to differences between dark and light blue than Russian speakers, and take longer to see them.The results confirmed their predictions; English speakers were slower to distinguish *between* *sinij* and *goluboj* than Russian speakers, but the two groups were equally fast at distinguishing differences *within* the *sinij* or *goluboj* category.

This experiment is complicated by the fact that the difference between English and Russian speakers only appears when speakers’ verbal abilities were not distracted. If they were given a verbal distraction task to perform at the same time as the color task, the difference between the two groups disappeared. That raises the question of the exact role of language in perceiving color: Is physical perception itself actually affected, or is language actively used as a labelling tool? If it is just a labelling tool, then perhaps Russians showed more sensitivity to color than English speakers not because they saw color more accurately, but simply because they had a more sensitive tool at their disposal.

Work by Thierry et al. (2009) suggests that the difference cannot be attributed to Russians’ use of an overt labelling strategy during color perception. Thierry et al. compared speakers of English with speakers of Greek, a langauge that, like Russian, makes a similar distinction between light blue (*ghalazio*) and dark blue (*ble*). They used a technique called visual mismatch negativity, which involves tracking brainwave responses to different color swatches. When the viewer detects a difference between colors, their brainwaves spike, and the greater the difference, the bigger the spike. In this experiment, Thierry et al. observed that speakers of English had the same brainwave response to changes between light and dark blue as light and dark green. Speakers of Greek, by contrast, had a larger spike for blue changes, which are labelled with two separate color words in greek, than for green changes, which are labelled with the same color word. Since viewers cannot consciously use their language’s vocabulary to affect their brainwave responses, this experiment shows that it is the visual perception itself, not the labelling strategy of the participant, that was affected by the language’s vocabulary.

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All of these findings suggest that linguistic structure does affect thought. A languge’s vocabulary can change a speaker’s sensitivity to color; a language’s syntax can change a speaker’s ability to remember who performed an action. Although Sapir and Whorf may not have had the ability to measure people’s brainwaves, they are correct in their hypothesis that language affects the way we see the world.

Thierry, Guillaume, Panos Athanasopoulos, Alison Wiggett, Benjamin Dering, and Jan-Rouke Kuipers. 2009. Unconscious effects of language-speciﬁc terminology on preattentive color perception. *PNAS* 106:4567–4570.

Whorf, B. L. (1939/1956a). The relation of habitual thought and behaviour to language. In *Language, Thought, and Reality: Selected writings of Benjamin Lee Whorf*, ed. John B. Caroll. Cambridge, USA: MIT Press. Pg. 134

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Winawer, Jonathan, Nathan Witthoft, Michael C. Frank, Lisa Wu, Alex R. Wade, and Lera Boroditsky. 2007. Russian blues reveal effects of language on color discrimination. *PNAS* 104:7790–7785.

**Essay 3**

The Sapir-Whorf hypothesis argues that language affects the way people think. Whorf states, ‘Users of markedly different grammars are pointed by their grammars towards different types of observations and different evaluations of externally similar acts of observation, and hence are not equivalent as observers, but must arrive at somewhat different views of the world.’ (Whorf 1940/1956, pg. 221). This claim, sometime known as linguistic determinism, is no longer believed, but current research still asks the question: is the weaker view, linguistic relativity, correct? Research on real and artificial languages suggest that it is.

Fausey and Boroditsky (2008) ran an experiment comparing English and Spanish speakers’ memory for agentivity. In English, accidents can be described with active sentences (e.g, ‘he broke the vase’), but in Spanish it is common to use impersonal constructions that don’t specify who was responsible (e.g., ‘Se rompió el florero’). They showed people videos of accidental and on purpose actions, and then asked viewers to decide which of two faces was in the video. They found that there was no difference in memory for actors with intentional actions, but English viewers had a better memory for the actors of accidental actions. Since English explicitly states the actors as the subject of a sentence, while Spanish uses impersonal constructions, this shows that people’s ability to remember agents of actions is affected by the language that they speak. However, The difference was very small: English speakers remembered at about 77% accuracy, whle Spanish speakers remembered at about 74% accuracy.

Another experiment looked at gender. Phillips et al. (2003) taught people a fake language, which they called Gumbuzi. Gumbuzi is like English, except that there is gender agreement. Some words take the article *oos*, and some take the article *sou*. These articles were not explicitly described as gender markers, but each word class contained only one gender of person. So *oos* words might include teapots and sailors, while *sou* words might include coffeepots and nurses. Half the participants learned that *oos* words included human females, while *sou* words included human males, and the other half learned the reverse pattern. After participants learned these gender markers, they were asked to rate how similar objects were. They rated inanimate objects, like teapots and coffeepots, more similar to humans who shared the same gender prefix (average 4.43 out of 9) than to humans who had a different prefix (average 3.79 out of 9). The authors argue that this means grammatical gender systems can affect how we view inanimate objects.

Another experiment looked at color. Russian has two words for blue, *sinij* and *goluboj*, while English only has one word for blue. Participants were asked to compare colored blocks and choose the block on the bottom that matched the block on the top. When the two bottom blocks had different words in russian, Russian speakers were faster at this task than English speakers, with 100 msec of category advantage. They were faster because they could use their vocabulary, so they could decide that two blocks matched because they were both *sinij* or both *goluboj*. English speakers couldn’t make this distinction, because all the blocks in English are just *blue*, and so they were slower. However, they were only slower by about 100 msec.

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In conclusion, this research shows that the hypothesis of linguistic relativity is true, but the hypothesis of linguistic determinism is false. Languages affect the way we see and remember color, agentivity, gender, and space and time, but they don’t have huge affects. 100 msec of reaction time, or a difference of 3% accuracy is not a large affect on human perception. This means Sapir and Whorf weren’t wrong, but they overstated their case.

Fausey, Caitlin M., and Lera Boroditsky. 2008. English and Spanish Speakers Remember Causal Agents Differently. In Proceedings of the 30th annual meeting of the Cognitive Science Society. Washington, D.C.

Phillips, Webb, and Lera Boroditsky. 2003. Can quirks of grammar affect the way you think? Grammatical gender and object concepts. In 25th *Annual Conference of the Cognitive Science Society*. Boston, MA

Whorf, B. L. (1940/1956). Linguistics as an exact science. In *Language, Thought, and Reality: Selected writings of Benjamin Lee Whorf*, ed. John B. Caroll. Cambridge, USA: MIT Press.

Winawer, Jonathan, Nathan Witthoft, Michael C. Frank, Lisa Wu, Alex R. Wade, and Lera Boroditsky. 2007. Russian blues reveal effects of language on color discrimination. PNAS 104:7790–7785.

**Essay 4**

The Spair-Whorf hypothesis says that language determines the way we think, it was first proposed by Benjamin Sapir Whorf, it comes in two flavors—weak determinism and strong determinsm. The weak determisnm is commonly accepted the strong determinism is disproven today. In this essay it will be explained how the Spair Whorf hypothesis is still used in modern research.

Hopi is a language spoken by native Americans with no word for time. Because it can’t express time the Hopi can’t understand time this is strong determinism. This view is ‘outlandish’ (Pinker 1990) and wrong. Whorf had tendencies to mysticism and so he couldn’t properly analyse Hopi. The semiotic triangle says that words link forms/signifier to concepts/signified/thought, and word can be different in different languages, so thought can be different in different languages too. For example, Quechua doesn’t have a word for ‘apparently’ so they use conjectural evidentials. Parashansi means it is raining because someone told me, inferential is parashanmi and it means I can see with my own eyes that it is raining, and conjectural is parashancha which means that it has to be raining because people are putting wet umbrellas by the door. In English we use ‘apparently’ to mean that we assume it’s raining but aren’t sure.

Edward Sapir was born in 1999 and died in 1939 and Benjamin Lee Whorf was born in 1897 and died in 1941. Sapir was a German immigrant and he studied Germanic linguistics at Columbia where he worked with Franz Boas and learned about Native American Languages. He was one of the most signfiicant Amerian linguists after Leonard Bloomfield. He had many students including Mary Haas and Morris Swadesh and Fred Egan and Hortense Powdermaker, but his most famous student was Benjamin Lee Whorf.

Benjamin Lee Whorf was a fire prevention engineer, but he became a linguist and came up with linguistic relativity, which is weak determinism. He wrote a grammar of Hopi and came up with the idea that the Hopi can’t understand the concept of time. Modern researchers have accepted his ideas, such a allophones and covert grammatical categories.

The semiotic triangle says that words link symbols to thoughts or reference. The form of the word is arbitrary, and can be different across different languages. For example, otter is otter in Englsh by wydra in Polish. The third point of the triangle is the referent which is the thing in the world. The link between symbols and reference is indirect because words have to go through thoughts first, however in cases of onomotopoeia the link can be direct because the sound of the word resembles the referent that it describes. The Sapir Whorf hypothesis says that the thoughts might be different across different languages because the words aren’t linked ot the referent.

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Strong determinism is disproven by weak determinism is correct. Quechua speakers do understand time, so Whorf was wrong, but some of his ideas are accepted today, such as allophones and grammatical categories.

Pinker, S. (1994). *The Language Instinct.* New York: Harper Collins, pgs 49-53.

https://en.wikipedia.org/wiki/Benjamin\_Lee\_Whorf

https://en.wikipedia.org/wiki/Edward\_Sapir

**Essay 5**

The Sapir Whorf hypothesis says that language influences the way we think. The strong version is called linguistic determinism, the weak version is called linguistic relativism. It is based on the semiotic triangle, which says that words link forms and concepts. Since forms can be different in different languages (e.g., otter is wydra in Polish), but referents remain the same, what happens to the concepts? Can they be different in different languages as a result of different forms? The Sapir-Whorf hypothesis says yes.

Edward Sapir was born in 1888 and died in 1939, and Benjamin Lee Whorf was born in 1897 and died in 1941. They argued that language affects how we see the world. Sapir stated, ‘Human beings do not live in the objective world alone, nor alone in a world of social activity . . . But are very much at the mercy of the particular language which has become the medium of expression for their society. It is quite an illusion to imagine that one adjusts to reality essentially without the use of language and that language is merely an incidental means of solving specific problems of communication or reflection. The fact of the matter is that the “real world” is to a large extent unconsciously built up on the language habits of the group . . . We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretation.’ This means that people develop habits of thought because of their languages, and see the world the way they are in the habit of doing.

Whorf agreed with Sapir. Whorf stated, ‘Users of markedly different grammars are pointed by their grammars towards different types of observations and different evaluations of externally similar acts of observation, and hence are not equivalent as observers, but must arrive at somewhat different views of the world’.This means that our language’s grammar affects how we view the world, and speakers of different languages are different observers. Whorf also said, ‘No individual is free to describe nature with absolute impartiality, but is constrained to certain modes of interpretation even while he thinks himself most free. . . All observers are not led by the same physical evidence to the same picture of the universe, unless their linguistic backgrounds are similar.’ This means that no one sees the world impartially, but people who have the same languages are more similar than people who have different languages.

Whof used the example of Hopi to support his ideas. Hopi has no word for ‘time’, so Hopi speakers are gratuitious when it comes to understanding time like English speakers. Stephen Pinker, however, thinks that Whorf was wrong, he thinks that Whof’s claims are outlandish, and that Whorf had long-time leanings towards mysticism.

There are two types of Whorfianism. The strong type is called linguistic determinism, it says that our understanding of the world is *determined* by the structure of our language. The weak view is neoWhorfianism or linguistic relativity, it says that our understanding of the world is *shaped* by our language. Caitlin Fausey and Lera Boroditsky wrote an article called ‘English and Spanish Speakers Remember Causal Agents Differently’, where they showed English and Spanish speakers videos of people popping a balloon and then asked what happened and who did it the first time. Spanish speakers wrote ‘the vase broke itself’ 75% of thetime and English speakers wrote ‘she accidentally broke the vase’ 60% of the time, and English speakers were better at remembering who did it the first time. This shows that people whose languages encode more agency (English) have better memories for agents.

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In conclusion, the Sapir-Whorf hypotehsis is right about agentive memory, grammatical gender, color perception, and space and time. But there are still some issues with the accuracy rates in Spanish, the ratings on the gender experiments, and the color reaction time.

Fausey, Caitlin M., and Lera Boroditsky. 2008. English and Spanish Speakers Remember Causal Agents Differently. In Proceedings of the 30th annual meeting of the Cognitive Science Society. Washington, D.C.

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*1*Whorf, B. L. (1940/1956). Linguistics as an exact science. In *Language, Thought, and Reality: Selected writings of Benjamin Lee Whorf*, ed. John B. Caroll. Cambridge, USA: MIT Press. Pg. 221

*2*Whorf, B. L. (1940/1956). Science and Linguistics. In *Language, Thought, and Reality: Selected writings of Benjamin Lee Whorf*, ed. John B. Caroll. Cambridge, USA: MIT Press. Pg. 214

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**Essay 6**

Edward Sapir was a linguist and anthropologist who was born in 1884 (Anonymous, 2019a). He documented indigenous languages in California, and one of his students, Benjamin Lee Whorf, was an engineer, but then became interested in linguistics, and studied Hopi and other indigenous languages of America (Anonymous 2020). Together they proposed a hypothesis called the Sapir-Whorf hypothesis, which argues that languages can affect they way you think. This essay will summarise the claims of the Sapir-Whorf hypothesis, and review some of the evidence that shows that it is false.

The Sapir-Whorf hypothesis has two types. The strong version is called linguistic determinism, it says that the way we see the world is *determined* by our language. We can’t understand anything unless we have a word to describe it. Whorf states, ‘Users of markedly different grammars are pointed by their grammars towards different types of observations and different evaluations of externally similar acts of observation, and hence are not equivalent as observers, but must arrive at somewhat different views of the world’ (Whorf 1940/1956a, pg 214). For example, Hopi has no word for time, so Hopi speakers can’t understand time like English speakers (Whorf 1940/1956b). But this claim is ‘outlandish’ and Whorf’s analysis of Hopi was limited and poorly analysed (Pinker 1994).

Hopi is an Uto-Aztecan language, spoken by about 5000 people in Arizona. It has no exact word that means ‘time’ but it has words that can express durations and occasions, and it has a future tense-suffix ‘-ni’ (Anonymous 2019b). A linguist named Ekkehart Malotki wrote a long book all about this issue, called ‘Hope time: a linguistic analysis of the temporal concepts in the Hopi language.’ For example, it has a word that means ‘now’, ‘yep’, and another word that means ‘up to this time’, ‘yuk’ (Ekkehart 1983, pg 22-23). ‘Hi-sa-t’ means ‘long ago’ and ‘ep’ means ‘then’ (Ekkehart 1983, pg 26-27). He argues that the Hopi use spacial metaphors to express time, and Whorf’s failure to recognize this is why he is wrong about Hopi. Ekkehart states, ‘My objective in this chapter, therefore, is to demonstrate how greatly Whorf erred in appraising space-time transfer in Hopi’ (Ekkehart 1983, pg. 15).

Kuuk Thaayorre is an Australian language spoken by people in Pormpuraaw. They use spatial metaphors to discuss time as well, but because their language describes space differently from English it also discusses time differently. In Kuuk Thaayorre, they use absolute directions, like north and south, whereas in English we use relative directions, like left and right. So when speakers of Kuuk Thaayorre are asked to put pictures in order of earliest to latest, they put them from east to west, while English speakers put them left to right (Boroditsky and Gaby 2010).

The weak version of the Sapir-Whorf hypothesis is linguistic relativism, it states that the way we see the world is affected if not entirely dependent on language. Since its weaker, it’s harder to disprove. For example, in Quechua people use evidentials to say how they know something is true, which are like verb suffixes (Faller 2002). But in English we only have an optional word, ‘apparently’, that we use if we don’t know something is true first-hand. Maybe Quechua speakers are more attentive to their sources of knowledge than English speakers, because they need to know about it to use the right verb suffixes. Another example is with colour perception. Speakers of Russian are more sensitive to differences in color than speakers of English, because they have more colour words (Winawer et al., 2007).

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In conclusion, this essay has shown that linguistic determinism is wrong, but linguistic relativism is correct. Hopi does have words for time, and Whorf was not analysing it correctly when he came up with his hypothesis. However, some evidence suggests that language influences thought to a small extent, which is the theory of linguistic relativism.

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