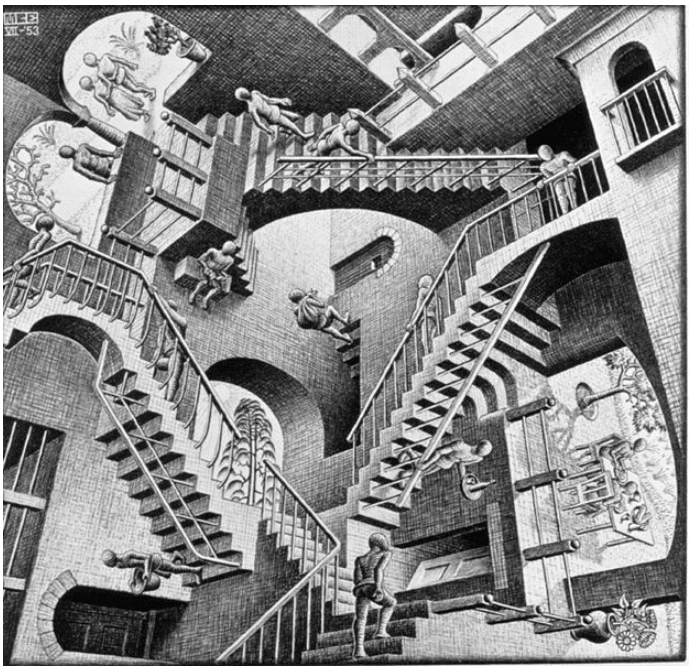
Linguistic Relativity and the work of Benjamin Whorf

Joshua Warren
Professor Froud
Teachers College
HUDK 5024 – Language Development
Final Paper
12/6/07

"The limits of my language **mean the** limits **of my world.**"
Ludwig Wittgenstein , *Tractatus* (1921)



"Relativity" by M.C. Escher (1953)

"Are our own concepts of 'time,' 'space,' and 'matter' given in substantially the same form by experience to all men, or are they in part conditioned by the structure of a particular language?" (Whorf, 1939) This question directs much of the work of Benjamin Whorf. Focusing on this theoretical concern, this paper will present Whorf's work as an underappreciated aspect in the development of language.

Benjamin Whorf (1897-1941) made his career as an engineer but he is far better known for his hobby (Carroll, 1956). While maintaining his full time job as a fire inspector, Whorf used his scientific training to study Native American languages. Between 1925 and his early death in 1941 he compiled a publication record of nearly 50 papers (Carroll, 1956). Most of these works focus on his study of a variety of Native American populations including Aztec, Mayan and Hopi. His work challenged conventions in the study of language, culture, and the nature of thought. His later works aim to synthesize his research towards a greater understanding of the relation of thought to language.

In 1940, Whorf clearly encapsulated what would later be developed into the Sapir-Whorf Hypothesis. In his paper entitled "Linguistics as an Exact Science," Whorf wrote of his "linguistic relativity principle" by which he meant "that users of markedly different grammars are pointed by their grammars toward 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)."

To ensure clear parallels, Whorf began this paper with allusions to Einstein's recent discoveries and to psychoanalytic theory (Whorf, 1940). Based on his work with Native American languages, Whorf proposed that thoughts are relative to culture and dependent on the

language grammars of the culture. Only later did this principle of linguistic relativity become known as the Sapir-Whorf hypothesis (Gentner 2003).

Linguistic relativity is often presented in a strong and weak form. The strong form would hold that all thought is determined by language. Whorf himself never advocated this position. Ironically, versions similar to this were proposed earlier by others (notably Humboldt in 1836) but the modern scholarship uses Sapir-Whorf as the conceptual label (Gentner, 2003). Whorf was an eloquent speaker and prolific writer without any official academic training in this field. This combination may have increased his use by detractors who hope to use exaggerated forms of his theories as straw-man arguments (Alford, 1995).

This seems to be the case in Stephen Pinker's The Language Instinct in which Pinker refers to "the famous Sapir-Whorf hypothesis of linguistic determinism" as "wrong all wrong" (Pinker, 2003). Pinker continues by alleging evidence of newer findings that dispute some of Whorf's findings.

But Whorf never presented language as strictly deterministic of thought. Instead he wrote: "[Language patterns and cultural norms] have grown up together, constantly influencing each other. But in this partnership the nature of the language is the factor that limits free plasticity and rigidifies channels of development in the more autocratic way. That is because a language is a system, not just an assemblage of norms." (Whorf, 1939)

This means that the speaker of a foreign language may understand their world in a way that is not completely different but that differs in subtle, significant and unexpected ways based of the nuances of their grammatical structure. Linguistic relativity also suggests that ones' own logic may be subject to fault arising from implications of grammatical perspective. In this way, language constrains (but does not determine) thought by privileging its own grammar.

Focusing primarily on the Hopi, Whorf supported his theories with evidence of native language patterns that would be considered unusual amongst speakers of what he called "Standard Average European (SAE) languages (Whorf, 1939)." Whorf claimed that SAE languages give "a bipolar division of nature. But nature herself is not thus polarized (Whorf, 1940a)." His project was a move away from Aristotelian logic and towards a wider range of possibilities. He hoped that a "significant contribution to science from the linguistic point of view may be the greater development of our sense of perspective (Whorf, 1940a)."

Whorf cites (1) the absence of spatial metaphors in Hopi as compared to the ubiquity of directionality in SAE languages, (2) the absence of container words for formless substances in Hopi, and (3) the absence of time quantifiers in Hopi as compared to the linear time of English (1939). He notes that "the Hopi has abundant conjugational and lexical means of expressing duration, intensity, and tendency directly," that Hopi "deal with formlessness through other symbols than nouns" and that "nothing is suggested about time except the perpetual getting later of it." (1939).

"We are thus introduced to a new principle of relativity, which holds that all observers are not led by the same physical evidence to the same picture of the universe, unless their linguistic backgrounds are similar, or can in some way be calibrated … Formation of ideas is not an independent process, strictly rational in the old sense, but is part of a particular grammar and differs, from slightly to greatly, between different grammars. We dissect nature along lines laid down by our native languages (Whorf, 1940a, emphasis added)."

"Thus English and similar tongues lead us to think of the universe as a collection of rather distinct objects and events corresponding to words (Whorf, 1941)." In contrast, "The Hopi microcosm seems to have analyzed reality largely in terms of events (or better 'eventing')

(Whorf, 1939)." Through presentation of these contrasts Whorf presents alternatives to the common sense of plain English. He wrote, "It is the plainest English **which contains the** greatest number of unconscious assumptions about nature (1941)."

In Whorf's work, there is a call for the study of concepts as distinct from both experience and from the unknowable thing in itself. For Whorf, there is a realm of conceptual knowledge that is a distinct part of the thing. For Whorf, this concept part is structured by language grammar. Thus conceptual knowledge (or common sense) differs between speakers of different grammars. Furthermore, this culture based difference can affect understanding of the nature of the very things themselves.

This position of weak linguistic relativity, which suggests that language is not deterministic on thought but has an effect on thinking, has substantial anecdotal support in the writings of Benjamin Whorf. Additionally, there is a growing body of modern empirical support:

Levinson (1996) showed a difference between Dutch and Tzeltal speakers as related to a spatial arrangement task. Tzeltal speakers lack some of the relational words and this led to varied performance on a spatial task. On tasks that have subjects reconstruct previous setups, subjects tend to construct the new setup differently if their language uses objective positioning (north-south) or relational positioning (left-right).

Boroditsky (2003) shows a connection between the arbitrary gender forms of German and Spanish nouns and the perceived gender properties of the objects. It seems that the arbitrary labels attach meaning through the merely grammatical association. Thus both sets of speakers would identify words that had masculine gender forms with more masculine properties despite the fact that the two languages differed on this arbitrary gender assignment.

Peter Gordon (2004) examined counting patterns in a native Amazonian population and found effects in their mathematic competency consistent with their language's structure. The native language only has words for "one," "two," and "many." Gordon's evidence suggests that these people lack the mathematical concept for anything other than these three words.

In similar work, Richard Nisbett's recent book the Geography of Thought (2003) consolidates years of his own research on the variations of thought between cultures. Nisbett's work focuses on differences between Asians and Westerners and he has found many marked differences (notably in situation perceptions). Though the work does not focus specifically on language related differences, this kind of work helps to further future efforts by highlighting detectable cultural difference.

The debate is not over. Work that suggests Whorfian themes is still controversially received (Casasanto, 2005). But research continues. A notable example of ongoing research is Project Implicit (2007): an online research collaboration between Harvard University, the University of Virginia, and University of Washington that hosts a variety of research projects designed to test unconscious effects between associated words. The online demonstration activities allow participants to experience some of the disturbing effects firsthand.

Many of these effects are subtle, difficult to measure and causally unclear. Therefore, definitive proof for or against Whorf's claims may never been achieved. However, the insights to be gleaned from this work should not be overlooked by any educational professional. It must be remembered that "the fact that we talk almost effortlessly, unaware of the exceedingly complex mechanism we are using, creates an illusion … Each language performs [an] artificial chopping up of the continuous spread and flow of existence in a different way (Whorf, 1941a)."

Whether translating a foreign text or analyzing a child's speech patterns it is important to keep in mind the insights of Benjamin Whorf and remember that these artificial and often arbitrary segments can create significant grammatical presumptions. Proper education (and communication generally) requires that these presumptions be made as visible as possible so that varying grammars can be efficiently and accurately calibrated. Once laid bare, these presumptions can function as a map to complete conceptual understanding. Only with calibration and exploration of the world's linguistic presumptions is there hope for understanding in a multicultural global society. But this does not seem possible unless SAE cultures begin to release their monopoly on truth.

References

1. 2007). "Project Implicit." Retrieved 11/20/2007, from https://implicit.harvard.edu/implicit/.
2. Alford, D. (1995) "Sapir-Whorf and what to tell students these days." LINGUIST List Volume, DOI:
3. Boroditsky, L. Linguistic Relativity. Encyclopedia of Cognitive Sciences
4. Boroditsky, L., Schmidt, L. & Phillips, W. (2003). Sex, Syntax, and Semantics. Language in Mind: Advances in the Study of Language and Thought D. Gentner, MIT Press: 61-80.
5. Carroll, J. B., Ed. (1956). Language, Thought & Reality. Cambridge, MA, MIT Press.
6. Cassanto, D. (2005). "Crying 'Whorf'." Science 307: 1721-1722.
7. Gentner, D. G. M., S. (2003). Wither Whorf. Language in Mind: Advances in the Study of Language and Thought D. Gentner, MIT Press: 3-14.
8. Gordon, P. (2004). "Numerical Cognition Without Words: Evidence from Amazonia." Science 306: 496-499.
9. Levinson, S. (1996). Frames of reference and Molyneux's Question: cross-linguistic evidence. Language and Space. P. P. Bloom, M. Cambridge,MA, MIT Press.
10. Nisbett, R. (2003). Geography of Thought: How Asian and Westerners Thing Differently ... and Why. New York, The Free Press.
11. Pinker, S. (2000). The Language Instinct, HarperCollins.
12. Subbiondo, J. L. (2005). "Benjamin Lee Whorf's theory of language, culture, and consciousness: A critique of western science." Language and Communication 25: 149-159.
13. Whorf, B. (1939). The Relation of Habitual Thought and Behavior to Language. Language, Thought & Reality. J. B. Carroll. Cambridge, MA, MIT Press.
14. Whorf, B. (1940). Linguistics as an Exact Science. Language, Thought & Reality. J. B. Carroll. Cambridge, MA, MIT Press.
15. Whorf, B. (1940a). Science and Linguistics. Language, Thought & Reality. J. B. Carroll. Cambridge, MA, MIT Press.
16. Whorf, B. (1941). Languages and Logic. Language, Thought & Reality. J. B. Carroll. Cambridge, MA, MIT Press.
17. Whorf, B. (1941a). Language, Mind and Reality. Language, Thought & Reality. J. B. Carroll. Cambridge, MA, MIT Press.