Questions C and D.

by ISABELL LONG

Question C.

Describe the early acquisition of speech sounds by children: What stages do children pass through, what sounds are first to be acquired and what variables appear to influence the order of acquisition of speech sounds?

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December 26, 2014

Child language acquisition is a fundamental part of the study of linguistics and psychology alike. As its name suggests, it deals with how those at all stages of childhood—infants through to young adults—gain an understanding and appreciation of language.

There are several main stages of child language acquisition which are mostly agreed upon. Between five and ten months old, children start babbling. Babbling is the child's repetition, potentially an attempt at imitation, of sounds they hear around them. Examples of this include "ba ba ba", "ma ma ma" or "goo goo"—comparative nonsense to us adults, but a ray of hope for those who may worry that their child suffers from a developmental disorder. Indeed, an absence of babbling at this age can indicate cause for concern, i.e. the potential onset of deafness—children can't articulate sounds if they don't hear them!—or determining that later in life the child may require speech therapy. Some parents may get excited about their children saying "ma ma ma" because they think that he or she is saying "mama", thinking that they are imitating the motherese (baby talk) that they would have said to their children to get their attention and help them learn faster [11]. This excitement is premature, however, as children at this young an age cannot properly form words.

Citation Needed

It is commonly accepted that expression of first words happens at what is called the variegated stage between ten and eighteen months. In this stage, vowels are acquiried earlier than consonants, yet /b/ and /p/ are the most common consonants found in a developing child's repertoire (O'Grady, 2005) and research on children who are learning to speak English has found that nouns are learned and used before verbs (Kelly, 2007). For example, "pick me up" would simply be articulated as "up" because "pick" is a verb ("to pick"), and "me" as the subject of the verb is unimportant—parents or other people such as nannies who have frequent contact with children at this stage would know what they want and fulfil their wishes by picking them up. In schools, singing is frequently used as a language-learning

device. There is strong evidence to suggest that language acquisition is sped up by singing, hence the existence of the ABC song for the alphabet. Children map a mental model of song lyrics more easily than if they were to hear a poem read out in a boring voice, because—in hearing people at least—our brains are inherently wired for sound. [2]

Even before the earliest speech development phase agreed upon, 6–8 months, researchers have found that talking to the baby in the womb (*in utero*) is beneficial for its linguistic development. In a study by DeCasper and Spence in 1986 at the University of South Carolina, it was determined that babies who were read to while in the womb were better at recognising their mothers' voices and the contents of the book, compared to those foetuses who had not been explicitly communicated with in this structured way. Therefore, it has been found that language development happens in an unstructured way before the mainly recognised stages, because babies once born can recognise their mothers' or fathers' voices and intonations above anyone else's.

In cases of neglect or abuse (both of which are sadly found together), from birth or up until the child is older, children who are not communicated with at all can have severe difficulties not only emotionally, but in acquiring and using even the simplest of language or grammar. This manifested itself strongly in a 1982 study conducted by Allen and Oliver which not only examined spoken language ability, but also the degree to which they understood through listening. It was found that neglect of this sample of children does indeed make both their spoken and auditory abilities weaker. This study does nothing to prove or disprove the critical period hypothesis: that there is a key language-learning age and if that window is missed, severe language-learning difficulties can arise. For that, we must turn to research such as the famous case of a child named Genie, who, when found aged thirteen, had no language skills whatsoever and did not acquire more than basic knowledge even after specialist teaching. [6] This leads us to agree with the critical period hypothesis as Genie at thirteen with no interaction was brought up as a "feral" child. However, science would not be accountable without multiple examples. Let us discover another linguistics poster-child—'Isabelle'—who was deaf and found isolated in a dark room at the age of six. She was also mute as she had had very little interaction with anyone else. Conversely, with specialist training Isabelle was able to acquire language at a very fast rate compared to the then-normal language ability of six year olds. [10] The studies however did not take into ac-

count that she was deaf, which, according to Nagai, could have severely affected her abilities, although said abilities were extremely positive and advanced her peers. That said, despite some flaws such as research not always being conducted by a linguist, both of these cases prove the critical period hypothesis: six years is still early enough, yet thirteen years *can* be too late.

Research is mostly concentrated on first language acquisition, but second language acquisition in the case of those with bilingual parents, or if the child lives in a country where those around him or her don't speak the same language as their parents, is also interesting and has its place. This has been studied by the likes of Ellis in 2008. For example, those who learn a second language at a young age have more of a chance of developing a native or near-native accent as found in Korean students learning English by Flege et al. (1999): those who had arrived in the United States earlier in their lives had a less noticeable foreign accent compared to those had arrived 23 years old.

Overall, it can be seen from the research that children acquire sounds at different stages and with varying degrees of success depending on their circumstances and upbringing.

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Question D.

Provide an account of Broca's aphasia. Detail how this syndrome was first identified & its neurological & linguistic characteristics.

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December 26, 2014

Broca's aphasia is a neurological condition that occurs in the frontal lobe on the left side of the brain—the Broca's area—which can lead to the sufferer not being able to coherently form complete sentences, as the Broca's area is a key region of the brain for speech production. Broca's aphasia usually presents itself after significant brain damage, such as a stroke or head trauma. The Broca's area was discovered by—and therefore, as was common at the time, named after—Paul Broca, a French surgeon and neuroanatomist.

Paul Broca treated a patient—his first—initally known as Tan, so named because all he could articulate was "tan". Broca determined that Tan had a "syphilitic lesion in the left cerebral hemisphere" [9], and so this type of aphasia was identified with that as a characteristic. This patient was later identified as 51 year old Leborgne who "had been without speech for many years". It was found in Broca's research on him that he could "vary the intonation of sound, [but not] produce any recognizable words or phrases" [6]. "Tan" is a word these days for a dark yellowish colour, but it was undefined in that form in the 1860s when Broca was conducting his research, according to the Dictionary which states that the definition of it being a colour only came into existence in 1888. To provide further support to his theory that the frontal lobe of the brain is involved in language production, specifically in his eponymous area, and following Leborgne's death, Broca concentrated on a French stroke patient Lelong. Lelong could say only five words, and those words always in succession: "yes", "no", "three", "always" and his mispronounced name, "Lelo", obviously in their French translation (also Dronkers et al. [6]). Broca received great acclaim for his findings, and advanced neuroscience greatly, giving scientists foundations on which to learn from autopsies of brains [12].

Patients with Broca's aphasia generally have only basic problems understanding sentences, but later evidence suggests that they miss out key articles such as "is", "the" or the past-parciple ending "-ed" when forming their own sentences in response [1] and can be very slow. For example, a sentence "the sky is blue" would be articulated as "sky... blue",

because the sufferer has lost knowledge of grammatical constructs in their language. In linguistics, this is known as "agrammatism": "[l]oss of the ability to use correct grammar" [13]. Broca's aphasia affects not only language production as agrammatic sentences, but also muscle control such as the person's ability to move their mouth to articulate sounds. Choices states that indirect symptoms can include "weakness down one side of [the patient's] body (usually the right side)", most likely due to lateralization of brain function—in that the left brain—where the Broca's area is—controls the right side of the body. This is why when people are suspected of having a stroke, they are asked in the 'F.A.S.T' [8, 16] steps to put their arms out in front of them: to check that they are still able to control the movement in both sides of their body.

This type of aphasia can be contrasted with another—Wernicke's aphasia, that affects the cerebral cortex area of the brain—in which the sufferer does not understand sentences and completely says the wrong word. To give an example, a "fork" could be said to be a "geeble" [2], which is not a real word and most certainly does not bear any relation to the sound of the word "fork".

Diagnosis of Broca's aphasia compared to Wernicke's aphasia is usually completed by a neurologist following the sufferer's injury. Almost instantaneous recovery is possible but reasonably rare: language abilities (whether they be speaking, reading or writing) can return within weeks [17], however more often than not it takes months or years of following a careful treatment plan. Apparently, 40% of adults who develop this type of aphasia recover at a steady pace [7]. Treatment of this impairment usually involves speech and language therapy conducted at a hospital by a trained specialist, but each case is different and patients need unique, tailored treatment. Techniques can include asking the sufferer to name objects such as horses or dogs, or computer work to readjust the patient to reading words in the case that their speech has not been too impaired. It is important too to involve other family members, if the patient has any, so that he, she or indeed the family members, do not feel isolated. The patient's confidence must then be increased by practicing normal day-to-day tasks such as greeting people and making phone calls. If the person has never been very talkative but, for example, likes singing, there is evidence [15] to suggest that singing words in sentences, rather than speaking them, increases the treatment success rate because it's a different method of expression. In the study by Schlaug et al., normal sentences such as "the

sky is blue" were sung instead of spoken, using a technique called melodic intonation therapy, the right hand motor controls were engaged with hand-clapping to ready the left of the brain to articulate the words, and with this fewer errors or hesitations occurred compared to the control group. This leads us to remember that not only is singing good for us, according to the Daily Telegraph [4], but different intonations and an appearance of fun may play a key role in comforting a sufferer. It may possibly lead him or her to not think of the condition as so disabling and emotionally debilitating, as they may not have to put so much pressure on themselves to make sounds [14].

Overall, Paul Broca was most certainly not the first to come up with theories of why language problems such as these occur, but his research was the most thoroughly documented [6] (compared to Marc Dax, as found in [11] via Dronkers et al., or many of the other paper authors in [18]). So, because science must be replicable, his findings stuck. The 1960s were founding years for this part of neuroscience, but it doesn't stop there: 2014 research [10] continues to uncover results which will mean more questions before answers.

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Questions C and D.

GRADEMARK REPORT

FINAL GRADE

50/100

GENERAL COMMENTS

Instructor

Essay 1

This essay discusses a few stages of early speech development in children. Most part of the essay, however, is not relevant to the essay topic, as the focus is on the critical period hypothesis, rather than on the different stages children go through during speech development, e.g. cooing, the characteristics of babbling in different stages, the characteristics of first words, the order of acquisition of sounds etc.

The referencing format needs some attention: please see relevant comments in the text.

Essay 2

This essay presents a largely relevant response to the question. Some parts of the essay, however, are not directly relevant to the topic, e.g. the comments on singing. The writing style would be clearer if shorter sentences were used.

Websites should not be used that extensively for writing essays.

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PAGE 2

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When making a point in one of your body paragraphs, one of the most common mistakes is to not offer enough details. A paragraph without much detail will seem vague and sketchy. A paper is always strengthened when your claims are as specific as possible, The more detailed evidence you offer, the more reference points your reader will have. Remember that you are communicating your argument to a reader who has only your description to go by. Someone who reads your essay will not automatically know what you mean to express, so you have to supply details, to show the reader what you mean, not just tell him or her.

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