平成23年度実施（下期）
東北大学大学院情報科学研究科
博士課程前期2年の課程・後期3年の課程入学試験問題

専門試験科目
第６群（心理・哲学群）

注意

○専門科目試験問題は、全部で１２問あります。
○前期２年の課程の受験者は、４問を選んでそれぞれ答案用紙に解答しなさい。
○前期２年の課程外国人留学生受験者は、３問を選んでそれぞれ答案用紙に解答しなさい。
○後期３年の課程の受験者は、２問を選んでそれぞれ答案用紙に解答し、さらに学習心理情報学または認知心理情報学（人間社会科学専攻）及び認知情報学（応用情報科学専攻）に配属を希望する者は小論文を作成しなさい。
○各答案用紙上の 問題番号 の空欄に、解答する問題番号を、
さらに、 受験番号： には受験番号を、それぞれ記入しなさい。
○試験時間： 10:00 - 13:00

平成24年2月29日

専門科目試験問題　第６群　（心理・哲学群）

1. 情景の認識における"gist（要点・主旨）"について説明しなさい。
2. 知能の２因子説と多因子説について説明しなさい。
3. 多重検定における偽発見率(False Discovery Rate: FDR)の制御について説明しなさい。
4. 学習において学習者の既有知識が果たす役割について論じなさい。
5. 認知過程の心理学実験法としての、オンライン法とオフライン法について説明しなさい。
6. メタ認知について説明し、それを研究する方法について具体的に述べなさい。
7. いわゆる「ソクラテス以前の哲学者たち」の思想について、少なくとも二人の哲学者を取りあげて、その特色を述べなさい。
8. 「自らすすんで悪をなす者はいない」という考え方について、各自の意見を展開しなさい。
9. 論理学の「排中律」をテーマにして、各自の意見を展開しなさい。
10. カントの「先天的総合判断」について説明しなさい。
11. コントによる精神発展の「三段階の法則」について説明しなさい。
12. フッサールの「本質直観」について説明しなさい。

平成23年度実施（下期）

東北大学大学院情報科学研究科

博士課程前期2年の課程・後期3年の課程入学試験問題

外国語（英語）

第6群（心理・哲学群）

注意

○解答は答案用紙に書きなさい。

○試験時間：　14:30 － 15:30

以下の英文は、進化心理学からみた言語に関する論説である。これを読んで下記の問いに答えなさい。

1. 言語のもつ2つの構造とは具体的に何を指すのか簡潔に答えなさい。
2. 下線部①～③を日本語に訳しなさい。なお、人名は原語のままでよい。

Although many components of language have some kind of analog in animal communication, our close relatives typically lack highly structured signals. Of course bird song can be complexly patterned, but ape and monkey communication seems to consist mostly of unanalyzable cries. Human language involves two types of structures. In the first, elements from a finite set of meaningless sounds are combined into meaningful words and parts of words, known as morphemes. Linguists call this phonology. The rules of phonology cover intonation and rhythm as well as the way specific sounds can be combined. The rules of sound apply at the smallest scale, between two single sounds that occur side by side, and over vast tracts of speech—from single sentences that either rise or fall depending on whether they are questions, to lengthier statements that end on a falling intonation. All these rules change depending on the language that is spoken.

In the second type of structure, words and morphemes are combined into phrases. This is what linguists call syntax. In 1960 the linguist Charles Hockett said that the relationship between the two types of combinatory rules was one of the major design features of human language; he called it "duality of patterning."

Inevitably, both kinds of structure have been found to be not restricted to humans. Elements of phonology operate not just in bird song but in the songs of whales. Phrases in these songs recur and are used again. In one early experiment Marc Hauser and a colleague demonstrated that vervet monkeys use a fall in pitch to mark the end of an utterance and that other vervets seem to interpret this as a signal to take a turn in vocalizing, like humans do. Tecumseh Fitch suggests there may be other elements of sound rules that animals share. ①Rhythm is an important element of human language, and Fitch points to the rhythm in the dominance displays of chimpanzees and gorillas as a possible precursor for this ability in humans. Gorillas put on impressive performances of vocalizing and rhythmic chest beating, and while this behavior has been little studied, it might provide a clue to the origins of rhythm in humans. Still, chimpanzees do not speak, and neither do they dance. If important analogs for this aspect of language exist in other animals, there are also important distinctions. Not only does other animal vocal communication not have the range of distinct sounds of human language, it doesn't appear to employ anything like the number and range of rules that we have for combining speech sounds.

Interestingly, it's been pointed out that the rules of phonology contradict Chomsky's notion of the poverty of stimulus—the idea that there is not enough information in the language a child hears for it to learn language. Philip Carr, a phonologist at the University of Montpellier in France, says there is abundant evidence of the rules of phonology in the speech that children hear. The "data arc more than complete," he wrote. Neonates, according to Carr, have access to more information than they need to understand the sound system of their language.

Of the two types of structures, syntax has been the more hotly contested in the language evolution debate. ②At its most basic, syntax is a series of rules for combining words in a meaningful way. All the words in the following sentence make perfect sense by themselves, but because the way they are lined up defies the syntax of English, there is no larger meaning: *the the are up way they meaning lined there no syntax English is defies*

larger of. ③Until very recently it was believed only we could understand or deploy any of the structural devices found in human syntax, but Kanzi showed that this is not entirely the case. He is able to learn and apply some rules to structure the symbols with which he communicates. In addition, Klaus Zuberbiihler has also established that rudimentary syntax can occur in the natural cries of monkeys in the wild.

Different types of syntax have been observed in the communication of a number of primate species. The black-and-white colobus, the titi monkey, the male gibbon, the chimpanzee, and the wedge-capped capuchin monkey have combinations of calls in their repertoire of cries. The black-and-white colobus uses a snort as an alarm call, but also places it before a roar, a combination that is used to help groups of these monkeys keep their distance from one another. The titi monkey combines several different calls into various combinations, and the response of its listeners shows that they distinguish between the different ordering of the sounds. Gibbons arrange a series of sounds into structured vocalizations, and the same is true of capuchins. In the case of gibbons, when the animal's song is arranged in a normal order, the listening gibbons squeak in response.

【注】Kanzi: 話し言葉の理解能力を示したボノボ（高等類人猿）の個体
verbet, colobus, titi, gibbon, capuchinなどはサルの仲間

小論文（社会人）課題

「言語と精神」というテーマで各自の意見を展開しなさい。