

In a Word

Time: T, TH, 11:00-12:20

Location: ZHS 159

Instructor: Hajime Hoji

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The members of the human species are able to produce and comprehend the language to which they are exposed once they have reached a certain maturational stage, barring any serious impairment. One of the most fundamental working hypotheses adopted in the research program initiated by Noam Chomsky over half a century ago is that underlying this ability of ours is what is called the *language faculty*. Chomsky has maintained that we should approach the *language faculty* just as natural scientists approach their subject matters.

The specific goal of this course is two-fold. On the one hand, it aims to introduce systematic aspects of language to the students, with regard to how words are formed, how sounds are put together to form a word, how words are combined to form a larger expression, such as a sentence, and how some aspects of the "meanings" are computed, among other issues. The other aim of the course is to introduce to the students, building on the discussion and activities pertaining to the first goal, how

the *language faculty* can be studied *scientifically*.

The latter aim is directly related to how we understand the term "scientifically." We can understand the term as more or less equivalent to "systematically," in the sense of making observations, coming up with a generalization based on the observations, testing the validity of the generalization against additional observations, and stating the generalization in terms of certain concepts and relations. The activities centering on the first goal, in the first three parts of the course, are in fact intended to be *scientific* in this sense.

One can also understand the sense of *scientifically* in a somewhat different way, by focusing on what hypotheses lead to what predictions, and how the predictions can be tested experimentally. As noted above, it is hypothesized by Chomsky and others that all members of the human species, barring any serious impairment, share the core properties of the *language faculty*. Every adult speaker of a human language then must *share* crucial properties of the *language faculty*. One can thus ask and we will address: What kind of *hypotheses* can we put forth about properties of the *language faculty*? What kind of *predictions* do we make based on such *hypotheses*? What kind of *experiments* can we conduct to test our *predictions*? How should we interpret the result of our experiment?

During the course of the semester, you will be asked to participate in on-line experiments. The participation is meant to help you understand our answers to the above-mentioned questions, in relation to your own *language faculty*. You will learn exactly what is predicted based on what hypotheses about the *language faculty*, how the experiment has been designed, how we can try to maximize the reliability and the precision of our experimental device, and how the experimental results are interpreted accordingly. To help you understand the nature of our experiment, we make reference to a couple of things that do not seem to be related to our experiment: (i) the viewing of a 3-D image out of a (random-dot) stereogram and (ii) the detection of the gravitational waves. You will learn, to your surprise, that it is possible to study the *language faculty* in a way very close to physics.

The lectures, the Lab activities, assignments, etc. are all meant to help you understand what is intended by the above remarks, among other things. That means that you should at the end of the semester be able to tell yourself and others your understanding of what is meant by the preceding

remarks. I thus suggest that you check your understanding by going over the remarks above regularly throughout the semester. As a concrete “measuring stick” for your understanding, Chomsky’s recent essay “[The Galilean Challenge](#)” is included in the readings. You will most likely have only a very vague understanding of the content of the essay at the beginning of the semester; but your understanding will improve as the semester goes by, and by the end of the semester, you will have a fairly good understanding of the main point(s) of the essay and more.¹

This course is designed to help you:

- Gain a *scientific* understanding of human language as a system of complex mental computation.
- Appreciate how much you know, tacitly and unconsciously, as a native speaker of a human language.
- Understand the universal aspects of what underlies our ability to relate linguistic sounds/signs to meaning.

I would like to emphasize, as a most important general point of the course, the importance of rational/scientific reasoning, which is of great significance in order for an individual to live a life which s/he feels is meaningful, worthwhile, etc., and for an individual to contribute to the survival and the advancement of the human species.

*This class will be using **Blackboard**. All students are expected to have an active personal USC account, and to know how to log into it. Course materials, assignments, and other content will be posted on Blackboard. It is your responsibility to check Blackboard regularly.*

¹ My “[Galileo’s Other Challenge](#)” is among the optional readings. You *do not have to* read it if you do not find it helpful in understanding Chomsky’s essay or our discussion in part 4 of the course. I hope some of you find it helpful and that is why I am including it among the optional readings.

Readings

Reading assignments for each week are listed in the schedule given below. The relevant reading materials will be available in advance on Blackboard (Content>Readings).

Course requirements and Grades

- There will be four open-book Tests. (You can consult with your notes or books or dictionaries; but you are not allowed to use an electronic device.) Tests 1 and 3 will each count 18 points for the course grade; Test 2 will count 14 points; Test 4 will count 19 points. Total: 69 points.
- There will be 3 Lab assignments, which we expect you to complete during the Lab session. Each Lab assignment will count 3 points for the course grade. Total: 9 points.
- There will be 4 non-Lab assignments. Those 4 assignments correspond to the four Tests and they serve a review purpose; each non-Lab assignment counts 3 points for the course grade. **The assignments are due 11am on the day of the Review Session (9/14, 10/3, 10/24, 11/21) for each Test.** Total: 12 points.
- You must raise a question during the lecture
- There are three additional assignments.
- You will be required to participate twice in the on-line Experiments (in the first part of the semester and also in the latter part of the semester). The FULL participation each time will count 3 points for the course grade. If you do not follow the instructions fully for registration and about when *not to* participate in the on-line experiments, you will not get the full points. (You should not participate in the on-line experiments during the lecture or the lab session unless otherwise instructed.) **The first Experiment-participation assignment is due 11:59 pm on 9/16 (Sat); the second Experiment-participation assignment is due 11:59 pm on 10/21 (Th).** Total:

6 points.

- There is an Experiment-Project assignment due 11:59 pm on 11/17 (Sat). This counts for 4 points for the course grade.

$$69+9+12+6+4=100$$

- The lowest score among the first 7 assignments mentioned above (i.e., those that are not Experiment-related) will be dropped in the calculation of the course grade. The interim grade you will start seeing in the middle of the semester reflects the dropping of the lowest score in the grade-calculation although you will continue to see the lowest score at Bb.
- An extra point will be given to those students whose attendance record is excellent; one extra point for lecture-attendance and one extra point for Lab-attendance. The attendance record is considered excellent if no session is missed without a very good reason (e.g. demonstrable illness or a life-changing event).

Important Clarification regarding what you see under Grade Center at Blackboard:

The figure given under "**Possible Points**" for each column at the Grade Center at Blackboard is **not necessarily the same** as the percentage point given above for each task. For example, the percentage points for each non-Lab Assignment is 3 points for the course grade, but you may see a different figure under "**Possible Points**" for the column for a non-Lab Assignment. Suppose that "**Possible Points**" for "Non-Lab-HW-1 is 11. This means that the maximum points you can get for the first non-Lab-Assignment is 11, which would translate to 3 points for the course grade. If you get 8 out of 11 in the first non-Lab-Assignment, you will get $3 \times (8/11) = 2.18$ points for the course grade. When you begin to see an interim course grade in the middle of the semester, the figure is based on the points for the course grade, not based on the "actual points" you got in various tasks. You sometimes have to convert the "actual points" to the percentage points for the course grade, as explained above. The interim percentage score reflects the dropping of the lowest score among the non-Experiment-related assignments.

Discussion/Lab Sections

Discussion/Lab sections meet weekly at the time specified in your class schedule. They are mostly devoted to Lab exercises. But, the main points of the entire course will be emphasized throughout the semester in the Discussion/Lab sections. You are expected to complete your Lab assignment during your Lab session. **Lab sections will start on August 25.**

Homework and Lab assignments

The Lab assignments are to be completed during the Lab session, unless otherwise instructed. **All of the non-Lab Assignments must be turned in or completed by the due date/time as specified above and as will also be specified below in the case of the experiment-participation and the Experiment-Project. Late assignments are not accepted without a very good reason (e.g. demonstrable illness or a life-changing event).**

Important: If you know that you need to turn in or complete your assignment late or if you know you will have to miss a Test, you must talk to the professor or your teaching assistant **well ahead of time** and obtain the permission to complete the relevant task (including the taking of a Test) later than the scheduled date/time. **You must have a very good reason for this (e.g. demonstrable illness or a life-changing event).**

Use of Laptop in Class

The use of a laptop computer (or an analogous device) is allowed in class only for the purpose of taking notes, unless otherwise instructed by the professor or the teaching assistants.

Academic Integrity

We expect that all students will uphold the USC Student Conduct Code. Because violations of the code harm every other student in the class, the instructors will aggressively prosecute any student who cheats on a test/quiz or homework/assignment or who allows others to cheat on a test/quiz or homework/assignment.

- Please Note: SCampus 2016-2017 ("Class Notes Policy" under "Academic Policies"): "Notes or recordings made by students based on a university class or lecture may only be made for purposes of individual or group study, or for other usual non-commercial purposes that reasonably arise from the student's membership in the class or attendance at the university. This restriction also applies to any information distributed, disseminated or in any way displayed for use in relationship to the class, whether obtained in class, via email or otherwise on the internet, or via any other medium. Actions in violation of this policy constitute a violation of the Student Conduct Code, and may subject an individual or entity to university discipline and/or legal proceedings."

Students with Disabilities

Students who need to request accommodations based on a disability are required to register *each semester* with the Disability Services and Programs. In addition, a letter of verification to the instructor from Disability Services and Programs is needed. Please make sure that the letter is delivered to me or the TA as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

Your continuing to be registered for the course will be regarded as indicating that you have read this syllabus **carefully** and **have agreed to the policies** stated above regarding grading, make-ups, etc.

Schedule²

Week	Date	Lecture and Readings
Week 1	8/22	Course introduction: syllabus and the main points of the course Reading: <i>Introducing Chomsky</i> , pp. 3-19; Chomsky, " The Galilean Challenge "
	8/24	An Introduction to language faculty science Readings: <i>Introducing Chomsky</i> , pp. 3-19; <i>The Language Instinct</i> , pp. 15-24; Chomsky, " The Galilean Challenge "
Week 2	8/29	Film "Colorless Green Ideas" Reading: <i>Introducing Chomsky</i> , pp. 3-19; <i>The Language Instinct</i> , pp. 15-24; Chomsky, " The Galilean Challenge "
	8/31	Morphology: Word-internal structure, derivational morphology Reading: "Morphology: The Study of Word Structure," ODA Ch. 4, pp. 111-136, 143-146.
Week 3	9/5	Morphology: Inflectional morphology Reading: "Morphology: The Study of Word Structure," ODA Ch. 4, pp. 111-136, 143-146.
	9/7	Morphology: Compounds Reading: "Morphology: The Study of Word Structure," ODA Ch. 4, pp. 111-136, 143-146.
Week 4	9/12	Morphology: Content words and function words, language acquisition Reading: "Morphology: The Study of Word Structure," ODA Ch. 4, pp. 111-136, 143-146.
	9/14	Review (First Non-Lab Assignment Due: 11am)
	9/16 (Sat)	Deadline for First Experiment-Participation: 11:59pm
Week 5	9/19	First Exam (18%)
	9/21	The Sound of Words: Phonetics/Phonology Reading: Relevant Linguistics, pp.13-24 and Ch. 3 pp. 37-42 and 46-47."

² I reserve the right to make necessary changes to this schedule. Changes will be announced in class and/or on Blackboard.

Week 6	9/26	The Sound of Words: Phonetics/Phonology (continued) Reading: Relevant Linguistics, pp.13-24 and Ch. 3 pp. 37-42 and 46-47."
	9/28	The Sound of Words: Phonetics/Phonology (continued) Reading: Relevant Linguistics, pp.13-24 and Ch. 3 pp. 37-42 and 46-47."
Week 7	10/3	Review (Second Non-Lab Assignment Due: 11am)
	10/5	Second Exam (14%)
Week 8	10/10	The Meaning of Words: Semantics Semantic competence and semantic relations Reading: Fromkin et al. (Ch. 7 pp.371-379)
	10/12	The Meaning of Words: Propositional Logic Reading: Propositional Logic_1-4.pdf (from L.T.F. Gamut. 1991. Ch. 2, pp. 28-35.).
Week 9	10/17	The Meaning of Words: Entailments, Quantifiers and Set Theory Reading: Fromkin et al. (Ch. 7 pp.371-379)
	10/19	The Meaning of Words: Entailments, Quantifiers and Set Theory (continued) Reading: Fromkin et al. (Ch. 7 pp.371-379)
	10/21	Deadline for Second Experiment-Participation: 11:59pm
Week 10	10/24	Review (Third Non-Lab Assignment Due: 11am)
	10/26	Third Exam (18%)
Week 11 ³	10/31	Language faculty science: its object of inquiry and methodology, and their immediate consequences—An initial discussion and an overview Readings: Feynman 1964/1995. <i>The Character of Physical Law</i> , pp. 150-153; “How to read the result charts.”
	11/2	Abstract mental representations, C-command and LF representations, BVA(A, B) Readings: Lasnik 1990, Syntax, pp. 5-17; “List of hypotheses” to be provided later”; Chomsky “ The Galilean Challenge ”
Week 12	11/7	Definite predictions and definite experimental results (I) Readings: “How the definite predictions are deduced from

³ The reading materials for Weeks 11-13 and their order might be slightly altered later.

		universal and language-particular hypotheses” to be provided later; “How to read the result charts” to be provided later; Chomsky “ The Galilean Challenge ”
	11/9	Definite predictions and definite experimental results (II) Readings: “How to read the result charts” to be provided later; Feynman 1985. <i>Cargo Cult Science</i> , pp. 340-341; “The Results of the Experiments this semester”; Chomsky “ The Galilean Challenge .” Optional reading: Hoji “ Galileo’s Other Challenge .”
Week 13	11/14	Precision and reliability of experiments in language faculty science, informant-classification Readings: Feynman 1985. <i>Cargo Cult Science</i> , pp. 340-341; “The Results of the Experiments this semester”; Chomsky “ The Galilean Challenge .” Optional reading: Hoji “ Galileo’s Other Challenge .”
	11/16	Focusing on the <i>individual</i> informants, Experiments dealing with languages other than English Reading: “The Results of the Experiments this semester”; Chomsky “ The Galilean Challenge .” Optional reading: Hoji “ Galileo’s Other Challenge .”
	11/17	(Experiment-Project Due: 11:59pm)
Week 14	11/21	Summary of Language Faculty Science Review (Fourth Non-Lab Assignment Due: 11am) Readings: Hoji 2015 <i>Language Faculty Science</i> , pp. 1-8; Einstein 1936. <i>Physics and Reality</i> , pp. 293-295; Einstein 1967. <i>Forward</i> , pp. xvii- xix; Chomsky “ The Galilean Challenge .” Optional reading: Hoji 2015 <i>Language Faculty Science</i> , pp. 313-318; Hoji “ Galileo’s Other Challenge .”
	11/23	No Class
Week 15	11/28	Fourth Exam (19%)
	11/31	Review and Further Discussion Readings: Chomsky “ The Galilean Challenge .” Optional reading: Hoji 2015 <i>Language Faculty Science</i> , pp. 313-318; Hoji “ Galileo’s Other Challenge .”

References

The relevant parts of each of the following will be posted at Blackboard or available on-line as

specified.

- Anderson, S. 2010. "How Many Languages Are There In The World, Linguistic Society of America." (Non-Lab Assignment #1 will make reference to this.)
- Chomsky, N. 2017. "[The Galilean Challenge](#)," *Inference: International Review of Science*, Vol. 3. Issue 1.
- Einstein, A., 1936. [Physics and Reality](#). The Journal of the Franklin Institute; Reprinted in: *Ideas and Opinions*. 1955. Crown Publishers, New York. (The assigned reading is pp. 293-295.)
- Einstein, A., Forward to *Dialogue Concerning the Two Chief World Systems—Ptolemaic & Copernican* by Galileo Galilei, translated by Stillman Drake, 1967, University of California Press. (The assigned reading is pp. xvii-xix.)
- Feynman, R. 1965/1994. *The character of physical law*. New York: The Modern Library. (The Feynman lectures based on which this book was prepared can be viewed on-line. If you Google "Feynman Messenger Lectures," you will find the seven lectures. The assigned reading is pp. 150-153, which is part of his seventh lecture ("Seeking New Laws") available at: http://www.youtube.com/watch?v=MIN_-Flswy0 (last accessed on 1/7/2016). The content of pp. 150-151 starts around 14:40 of that video.)
- Feynman, R. 1985. "Cargo Cult Science," in Feynman 1985. "*Surely You're Joking, Mr. Feynman!*," W. W. Norton & Company, NY. (The assigned reading is pp. 340-341.)
- Feynman, R. 1999. *The Pleasure of Finding Things Out*, Basic Books, New York. (The assigned readings are pp. 22-23 and pp. 108-109. What is in pp. 22-23 can be viewed at: <http://www.youtube.com/watch?v=IaO69CF5mbY> (last accessed on 1/7/2016).)
- Fromkin, V. (Editor) 2000. *Linguistics: An Introduction to Linguistic Theory*. Blackwell Publishers Inc. Malden, MA. (The assigned reading is pp. 371-379.)
- Gamut, L.T.F. 1991. *Logic Language and Meaning*. Volume 1: Introduction to Logic. The University of Chicago Press. (The assigned reading is pp. 28-35.)
- Hoji, Hajime. 2015. *Language Faculty Science*. Cambridge University Press. (The assigned readings are pp. 1-8 and pp. 313-318.)
- Hoji, Hajime. 2017. "[Galileo's Other Challenge](#)," *Inference: International Review of Science*, Vol. 3. Issue 2.
- Justice, P. *Relevant Linguistics*. Chicago: Chicago University Press. Relevant parts on Blackboard. (The assigned readings are pp. 13-24, pp. 34-42, and pp. 46-47.)
- Lasnik, H. 1990. Syntax, in *Language: An Invitation to Cognitive Science Volume 1* (D. N. Osherson and H. Lasnik (eds.)), A Bradford Book, The MIT Press. (The assigned reading is pp. 5-17.)
- Maher, J. and J. Groves. 1998. *Introducing Chomsky*. Totem Books. (The assigned reading is pp. 3-19.)
- O'Grady, W., M. Dobrovolsky, and M. Aronoff, *Contemporary Linguistics: An Introduction*, 2nd edition. New York: St. Martin's Press (ODA). (The assigned readings are pp. 111-136 and pp. 143-146.)
- Pinker, S. *The Language Instinct*. New York: William Morrow and Company. (The assigned reading is pp. 15-24.)