

Linguistics 632: Seminar in Phonetics

Dynamical models of Gestural Planning

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Th 3:30-5:40

[Zoom Link](#)

Plan

Articulatory Phonology (AP) was developed as an initial exploration of how to do phonology and phonetics within a non-dualist theoretical perspective of cognition. In particular, it assumes that cognitive and physical descriptions of speech are both part of single self-organized system, rather than distinct domains that operate with very different principles, requiring arbitrary mappings from one to another. Further, in the non-dualist perspective, the physical and cognitive interact and give rise to the properties of the system as a whole, opposed to the traditional view in linguistics that a symbolic phonology “drives” (shapes) the phonetics. However, AP was necessarily quite limited (given the resources available during its development) and it fails to make good on the interaction of physical and the cognitive in many ways. For example, the quantitative specification of gestures (their dynamical parameter values) and their coordination are rigidly (and more or less arbitrarily) stipulated in advance rather emerging flexibly as speech execution unfolds under various conditions in the presence of real-time feedback. Over the last 20 years, models have begun to be developed by various researchers to address these shortcomings. Most of this has taken the form of developing models of *gestural planning*, as opposed to the Task Dynamics model of *execution* that is at the heart of AP. In this course we will examine the key features of planning that are addressed by these non-dualist planning models. One general framework for developing non-dualist models of cognition is Dynamical Field Theory (DFT), e.g., Schöner (2016), [*Dynamic thinking: A primer on dynamic field theory*](#), and some of these proposed gestural planning models have been formulated in that framework. We will develop our understanding of DFT through using public domain Matlab tools that are available and will attempt to see whether it can provide a unified framework for all of these features of planning.

Required Work

- Reading
- Responsibility for presenting articles and leading discussion
- Developing simulation models in DFT

Materials

Slides, Code, Videos, Notes, reading assignments etc. are available here:
<https://sail.usc.edu/~lgoldste/ArtPhon/>

Course Outline

Introductory

Week 1: Intro to dynamical systems

Week 2: Intro to Dynamical Field Theory (DFT)

Week 3: Execution: Task-Dynamics and Articulatory Phonology

Features of non-dualist planning models:

Week 4: Unity of Planning and Execution

Week 5: Coordination of Gestures in Syllables

Weeks 6-7: Serial Order and Competition

Week 8: Continuous Activation levels and Threshold Phenomena

Week 9: Categorical Intentionality

Weeks 10-11: Feedback and Planning

Week 12: Compatibility with Neural dynamics

Week 13: Compatibility with development

Week 14: Pause and Duration planning

Week 15: Self-organization of gestures

The virtual classroom: netiquette

Although we are not in a physical classroom, we need to still treat the virtual environment with respect as a learning environment.

- It is required that your laptop/tablet's webcam and audio be operational. A phone is not an adequate device for class purposes.
- Just as visual and hearing communication is important to learning in an in-person classroom, it is important in a virtual classroom. Please have your webcam turned on ("Start Video") unless confronted with unavoidable personal or technical limitations. Please mute audio when you are only listening. Your full name should be displayed.
- You are not permitted to give the class's Zoom meeting link or password to anyone not enrolled in the class. You are expected to login with your USC address/zoom account through USC's SSO (single sign on).
- You should understand that USC records class meetings. This will allow students in Asia to attend asynchronously if they need, or will provide for unanticipated emergencies. The provost states that "students should plan to attend every synchronous session for the classes in which they are enrolled, irrespective of when it occurs in their time zone...within reasonable learning hours in the student's time zone, defined as 7:00am to 10:00pm."

The provost reminds "students of their responsibilities towards the appropriate use and handling of these recordings under existing SCampus policies regarding class notes (<https://policy.usc.edu/scampus-part-c/>)...[students] are not permitted to create their own class recordings without the instructor's permission. Violations of these policies will be met with the appropriate disciplinary sanction.

Try to keep external distractions to a minimum. It is important to be cognizant of the following in our learning environment:

- Do your best to find a quiet, well-lit space prior to logging onto the live session. The setting should be an environment conducive to learning.
- Proper classroom attire is expected. (If you wouldn't wear it in an in-person classroom, please don't wear it in our virtual classroom.) Ditto for behavior.
- Please sit up at your table or desk, just as you would in a physical classroom. Your face should be in the camera frame.
- Please minimize distractions, both for your own learning and for others in the virtual classroom. Some visual and audio distractions that are best avoided during class time are: children, pets, TV, music, media, phones, and people moving in the background. If such a situation arises, simply briefly mute your video and audio.
- Public spaces are not conducive to learning in the virtual classroom. You should be in a place where you can hear and see the instructor and other classmates without distractions, and they can likewise hear and see you without distractions.

Students should attend class in a timely manner and remain until the class session is over. Although virtual, the Zoom meeting is a classroom and should be respected as such, in compliance with the USC Student Conduct Code.

*Netiquette here was adapted by Dani Byrd from Professor Christa Bancroft and from the Virtual Academic Center in the USC Suzanne Dworak-Peck School of Social Work

Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, "Behavior Violating University Standards" policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call

studenthealth.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call

suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press "0" after hours – 24/7 on call

studenthealth.usc.edu/sexual-assault

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) - (213) 740-5086 / Title IX – (213) 821-8298

equity.usc.edu, titleix.usc.edu

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298

usc-advocate.symplicity.com/care_report

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity /Title IX for appropriate investigation, supportive measures, and response.

The Office of Disability Services and Programs - (213) 740-0776

dsp.usc.edu

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Campus Support and Intervention - (213) 821-4710

campussupport.usc.edu

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.