Class 23
Distributions in OT

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Important point about Optimality Theory

- A language has a **single ranking of constraints** that never changes.
- To analyze a language, you need to find one ranking of constraints that simultaneously generates all of the different patterns/processes the language has.

1 Review: Constraints and their definitions

- We now know there are two different categories of constraints: **Markedness** and **Faithfulness** constraints.

- The faithfulness constraints are a relatively small set:

(1) **Max:** Don't delete.

(2) **Dep:** Don't epenthesize.

(3) **Ident[F]:** Don't change the value of feature F.

→ There is a different Ident constraint for every feature: Ident[voice], Ident[nasal], Ident[place], etc.

- The set of Markedness constraints is much larger.
  - ⋆ It is a goal of analysis to figure out how to define the Markedness constraint that is relevant to the process/distribution you are looking at.

- Syllable structure constraints are Markedness constraints:

(4) **Sonority Sequencing Principle (SSP):** Assign one violation to a candidate for:
   a. Each complex onset that it has that does not have rising sonority, and
   b. *Each complex coda that it has that does not have falling sonority.*

(5) **NoCoda:** Assign one violation to a candidate for each coda that it has.

(6) **NoComplexOnset:** Assign one violation to a candidate for each complex onset that it has.

(7) **NoComplexCoda:** Assign one violation to a candidate for each complex coda that it has.

(8) **Onset:** Assign one violation to a candidate for each syllable that it has that doesn't have an onset.

- We've also encountered some Markedness constraints that don't have anything to do with syllable structure:

(9) **NoFinalVoicedObs** (*[+voice,−son]#)
Assign one violation to a candidate if it has a voiced obstruent in final position.

(10) **Agree[voice]** (*[−αvoice,−son][αvoice,−son])
Assign one violation to a candidate for each sequence of adjacent obstruents it has that have different values for [±voice].

(11) **NoGeminate** (*$C_\alpha C_\alpha$)
Assign one violation to a candidate for each sequence of adjacent consonants which are identical in all features.

2 Some notes on analysis in OT

- Every phonological process results from ranking the relevant Markedness constraint over the relevant Faithfulness constraint.
- When multiple different changes could have fixed the Markedness problem, the Faithfulness constraint that penalizes the actual change ranks **below** the Faithfulness constraints penalizing those other changes.
- In order for an analysis to be correct, each losing candidate must have a violation of a constraint that ranks **higher** than the constraint(s) violated by the winning candidate.

3 Distributions in OT

- We've talked a lot of about complementary distribution vs. contrastive distribution.
- In OT, it becomes easier to understand how these concepts fit into the bigger picture.

- In reality, there are **four kinds of distributions**, relating to whether and where a language makes a **contrast** between sounds/features.

→ These four distributions follow from the **four different kinds of rankings** you can have of three different kinds of constraints:

(12) Three different kinds of constraints

a. Faithfulness constraints — e.g. IDENT[voice]

b. *Context-free* Markedness constraints — e.g. NOVOICEDOBS (*[+voice,−son])

c. *Context-sensitive* Markedness constraints — e.g. NOINTERVOCALICVOICELESSOBS (*V[−voice,−son]V)

- While there are 6 possible ranking permutations, there are only four different effective distributions that these can result in. We're going to figure out what those are.

⋆ The following four schematic languages represent the four possible distributions, according to the constraints above.

→ Describe what is going on in each of the languages.

→ Construct a ranking of the three constraints above that will produce that language.

Language 1

Word-final	Intervocalic
/pat/ → [pat]	/pat-o/ → [pato]
/pad/ → [pad]	/pad-o/ → [pado]

Language 2

Word-final	Intervocalic
/pat/ → [pat]	/pat-o/ → [pado]
/pad/ → [pad]	/pad-o/ → [pado]

Language 3

Word-final	Intervocalic
/pat/ → [pat]	/pat-o/ → [pado]
/pad/ → [pat]	/pad-o/ → [pado]

Language 4

Word-final	Intervocalic
/pat/ → [pat]	/pat-o/ → [pato]
/pad/ → [pat]	/pad-o/ → [pato]