Today's objectives:

- **Find informative losers**
- **Make valid ranking arguments**
- **Syllable-structure analysis in OT**

Background preparation:

- *Handout - OT fundamentals*

0. Today's plan

- OT check-in
- Markedness and faithfulness constraints
- More practice
  - Informative losers, ranking arguments
  - OT and the syllable structure of English
- Summarizing rankings with Hasse diagrams
- Check-in: Rankings and their predictions

1. OT check-in

Doing phonological analysis in OT

- What does the **grammar** of a language consist of?

- What is/How do we make a **ranking argument**?

1. OT check-in

Doing phonological analysis in OT

- What does the **grammar** of a language consist of?
  → That language's ranking of the universal set of constraints

- What is/How do we make a **ranking argument**?
  → **Evidence** that ConstraintA » ConstraintB
    - Such evidence comes from **constraint conflict**
    - Requires an **informative loser**

1. OT check-in

Constraints

- How should every constraint **definition** start?

- How is a constraint **different** from a **rule**?

1. OT check-in

Constraints

- How should every constraint **definition** start?

  → Assign one * for every…

- How is a constraint **different** from a **rule**?
  - **Rules** identify a target (in an environment) and **specify how to change it**
  - **Constraints** identify what phonological structures are **assigned violations**
    - In OT, what makes a surface form *different* from its UR?

2. Markedness and faithfulness constraints

- From last time:

/æklejm/	NoCoda	NoOnsetCluster
(→)(a) [ə.klejm]	*	*
(b) [ək.lejm]	** W	L
× (c) [ə.kə.lejm]	*	L
× (d) [ə.lejm]	*	L

- **What constraints** could make (c) and (d) lose?

2. Markedness and faithfulness constraints

- **What constraints** could make (c) and (d) lose?
  - We need a constraint **against deletion**
  - We need a constraint **against epenthesis**

NoDeletion	Assign one * for every segment in the input that is not in the output
NoEpenthesis	Assign one * for every segment in the output that is not in the input

- Are these plausible constraints?
  - Is avoiding deletion/epenthesis a plausible goal?

2. Markedness and faithfulness constraints

- Are these plausible constraints?
  - Is avoiding deletion/epenthesis a plausible goal?
- Having the **output** (SR) **be like the input** (UR) is a plausible goal
  - It should make it easier to find the UR in your lexicon on hearing the SR if the two are identical
  - Epenthesis and deletion are two ways for SRs *not* to look like URs

2. Markedness and faithfulness constraints

Two general types of constraints

- Constraints that **compare outputs to inputs** and require them to be **identical** (in some way) are **faithfulness constraints**
- Constraints evaluating only **properties of outputs** (surface forms) are **markedness constraints**
  - Often based on phonetic or typological evidence
- What are examples of each type?
- Handout - Markedness and faithfulness constraints

3. Informative losers and ranking arguments

Group discussion

- Data set: English syllabification with constraints

  Each group picks one word:

  (a) **/ɪglu/ [ɪ.glu] 'igloo'**

  (b) **/fild/ [fild] 'field'**

  For the word that you are working on:

  - What is the **input** in an OT tableau?
  - Which **output** candidate must be in the tableau?
  - What constraints does the winner violate?

3. Informative losers and ranking arguments

Checking in

- Considering the form **/ɪglu/ [ɪ.glu] 'igloo'**
  - What is the **input** in an OT tableau for this word?
  - Which **output** candidate must be in the tableau?
  - What constraints does the winner violate?

/ɪglu/	NO EPEN	NO DEL	ONSET	NO CODA	NO ONSCL	NO CODCL
→ (a) [ɪ.glu]						

3. Informative losers and ranking arguments

Checking in

- Considering the form **/fild/ [fild] 'field'**
  - What is the **input** in an OT tableau for this word?
  - Which **output** candidate must be in the tableau?
  - What constraints does the winner violate?

/fild/	NO EPEN	NO DEL	ONSET	NO CODA	NO ONSCL	NO CODCL
→ (a) [fild]						

3. Informative losers and ranking arguments

Group discussion

(a) **/ɪglu/ [ɪ.glu] 'igloo'**

(b) **/fild/ [fild] 'field'**

- What **other** candidates should be in the tableau?

  Hint:

  - The winner violates **two** constraints in each case
  - We can look at the (failed) alternatives to violating those two constraints **separately**

- What **ranking arguments** can we make?

3. Informative losers and ranking arguments

- Are these losers informative? What rankings do they prove?

/ɪglu/		NO EPEN	NO DEL	ONSET	NO CODA	NO ONSCL	NO CODCL
→ (a)	[ɪ.glu]			*		*	
(b)	[hɪ.glu]						
(c)	[glu]						
(d)	[hɪg.lu]						
(e)	[ɪg.lu]						

3. Informative losers and ranking arguments

- Are these losers informative? What rankings do they prove?

/ɪglu/		No Epen	No Del	Onset	No Coda	No OnsCl	No CodCl
→ (a)	[ɪ.glu]			*		*	
(b)	[hɪ.glu]	* W		L		*	
(c)	[glu]		* W	L		*	
(d)	[hɪg.lu]	* W		L	* W	L	
(e)	[ɪg.lu]			*	* W	L	

3. Informative losers and ranking arguments

- Rankings proven:
  (b) NoEpenthesis » Onset
  (c) NoDeletion » Onset

- What can we conclude from candidate (d), [hɪg.lu]?
  (d) NoEpenth » Onset ***or*** NoCoda » Onset
  NoEpenth » NoOnsClust ***or*** NoCoda » NoOnsClust
  - More informative to look at (b), (e) separately
  - Usually best to address one winner * at a time

- What can we conclude **about Onset** from (e), [ɪg.lu]?

3. Informative losers and ranking arguments

- Are these losers informative? What rankings do they prove?

/ɪglu/		No Epen	No Del	Onset	No Coda	No OnsCl	No CodCl
→ (a)	[ɪ.glu]			*		*	
(b)	[hɪ.glu]	* W		L		*	
(c)	[glu]		* W	L		*	
(d)	[hɪg.lu]	* W		L	* W	L	
(e)	[ɪg.lu]			*	* W	L	

3. Informative losers and ranking arguments

- Are these losers informative? What rankings do they prove?

/ɪglu/		NO EPEN	NO DEL	ONSET	NO CODA	NO ONSCL	NO CODCL
→ (a)	[ɪ.glu]			*		*	
(e)	[ɪg.lu]						
(f)	[ɪgl.u]						
(g)	[ɪ.gə.lu]						
(h)	[ɪ.lu]						

3. Informative losers and ranking arguments

- Are these losers informative? What rankings do they prove?

/ɪglu/		No Epen	No Del	Onset	No Coda	No OnsCl	No CodCl
→ (a)	[ɪ.glu]			*		*	
(e)	[ɪg.lu]			*	* W	L	
(f)	[ɪgl.u]			** W	* W	L	* W
(g)	[ɪ.gə.lu]	* W		*		L	
(h)	[ɪ.lu]		* W	*		L	

3. Informative losers and ranking arguments

- Rankings proven:
  - (e) NoCoda » NoOnsetCluster
  - (g) NoEpenthesis » NoOnsetCluster
  - (h) NoDeletion » NoOnsetCluster
- What can we conclude from candidate (f), [ɪgl.u]?
  - (f) Onset » NoOnsetCluster
    - ***or*** NoCoda » NoOnsetCluster
    - ***or*** NoCodaCluster » NoOnsetCluster
  - Not actually informative: too many constraints favor the winner

3. Informative losers and ranking arguments

- Are these losers informative? What rankings do they prove?

/ɪglu/		No Epen	No Del	Onset	No Coda	No OnsCl	No CodCl
→ (a)	[ɪ.glu]			*		*	
(e)	[ɪg.lu]			*	* W	L	
(f)	[ɪgl.u]			** W	* W	L	* W
(g)	[ɪ.gə.lu]	* W		*		L	
(h)	[ɪ.lu]		* W	*		L	

3. Informative losers and ranking arguments

- All rankings proven using /ɪglu/

  (b) NoEpenthesis » Onset
  (c) NoDeletion » Onset
  (e) NoCoda » NoOnsetCluster
  (g) NoEpenthesis » NoOnsetCluster
  (h) NoDeletion » NoOnsetCluster

- We can summarize these individual pairwise rankings into an overall ranking for the language, using a **Hasse diagram**
  - Handout: "Informative losers / ranking argts"

3. Informative losers and ranking arguments

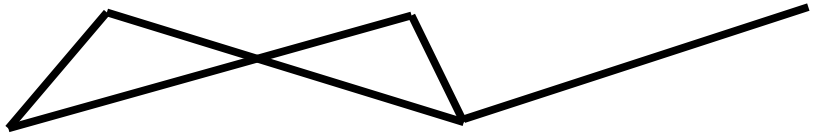
- We can summarize all these individual pairwise rankings into a ranking for the language, using a **Hasse diagram**
  - This is a type of tree diagram
  - A **line** between two constraints shows that there is a **ranking** between them
  - If there is a line between, **higher**-ranked constraints are shown **above** lower-ranked constraints
  - If there is no line between, vertical position doesn't mean anything

3. Informative losers and ranking arguments

- All rankings proven using /ɪglu/
  - (b) NoEpenthesis » Onset
  - (c) NoDeletion » Onset
  - (f) NoCoda » NoOnsetCluster
  - (h) NoEpenthesis » NoOnsetCluster
  - (i) NoDeletion » NoOnsetCluster

- Combining these rankings in a Hasse diagram:

NoEpenthesis NoDeletion NoCoda



Onset NoOnsetCluster

3. Informative losers and ranking arguments

- Are these losers informative? What rankings do they prove?

/fild/	NO EPEN	NO DEL	ONSET	NO CODA	NO ONSCL	NO CODCL
→ (a) [fild]				*		*
(b) [fil]						
(c) [fi.ləd]						
(d) [fi.lə.də]						

3. Informative losers and ranking arguments

- Are these losers informative? What rankings do they prove?

/fild/	NO EPEN	NO DEL	ONSET	NO CODA	NO ONSCL	NO CODCL
→ (a) [fild]				*		*
(b) [fil]		* W		*		L
(c) [fi.ləd]	* W			*		L
(d) [fi.lə.də]	** W			L		L

3. Informative losers and ranking arguments

- Are these losers informative? What rankings do they prove?

/fild/		NO EPEN	NO DEL	ONSET	NO CODA	NO ONSCL	NO CODCL
→ (a)	[fild]				*		*
(e)	[fi]						
(f)	[fildz]						
(g)	[fil.əd]						

3. Informative losers and ranking arguments

- Are these losers informative? What rankings do they prove?

/fild/		NO EPEN	NO DEL	ONSET	NO CODA	NO ONSCL	NO CODCL
→ (a)	[fild]				*		*
(e)	[fi]		** W		L		L
(f)	[fildz]	* W			*		*
(g)	[fil.əd]	* W		* W	** W		L

3. Informative losers and ranking arguments

- Candidate (f) is not actually an informative loser
  - No constraints prefer the loser (**no L** in the row)
  - That means there is **no constraint conflict** here
  - This gives us **no information** about how the constraints are **ranked** — (a) *always* beats (f)!

/fild/	NO EPEN	NO DEL	ONSET	NO CODA	NO ONSCL	NO CODCL
→ (a) [fild]				*		*
(f) [fildz]	* W			*		*

3. Informative losers and ranking arguments

- Candidate (f) is not actually an informative loser
- Does this mean we should ***never*** discuss losers that are not informative?
  - Not necessarily — it can sometimes be useful to show that **the grammar correctly rejects** a certain form, even if that doesn't help us figure out the ranking
  - But it is important to clearly understand which losers **actually provide information** about the ranking

3. Informative losers and ranking arguments

- What does candidate (g) show us about the ranking?
  - What must dominate NoCodaClust for (a) to win?

/fild/	No Epen	No Del	Onset	No Coda	No OnsCl	No CodCl
→ (a) [fild]				*		*
(g) [fil.əd]	* W		* W	** W		L

3. Informative losers and ranking arguments

/fild/	NoEpen	NoDel	Onset	NoCoda	NoOnsCl	NoCodCl
(g) [fil.əd]	* W		* W	** W		L

- Remember: Every L-marked constraint must be dominated by **at least one** W-marked constraint
- We can't tell if it's NoEpenthesis, Onset, or NoCoda (or more than one) that's making (h) lose
- So (g) does technically provide ranking information, but it's not very useful in practical terms — it's better to find candidates that compare these constraints **separately**

3. Informative losers and ranking arguments

- Candidates must show **syllable structure**!
  (if it is relevant for the constraints under discussion)
  - Candidates (c) and (g) are **not the same thing** — your tableau has to make clear which you mean

/fild/	NO EPEN	NO DEL	ONSET	NO CODA	NO ONSCL	NO CODCL
→ (a) [fild]				*		*
(c) [fi.ləd]	* W			*		L
(g) [fil.əd]	* W		* W	** W		L

  - No language ever picks (g) — but it's a candidate!

3. Informative losers and ranking arguments

- What rankings have we proven using /fild/?

/fild/	NoEp	NoDl	Ons	NoCd	NoOCl	NoCCl
→ (a) [fild]				*		*
(b) [fil]		* w		*		L
(c) [fi.ləd]	* w			*		L
(d) [fi.lə.də]	** w			L		L
(e) [fi]		** w		L		L

3. Informative losers and ranking arguments

- What rankings have we proven using /fild/?
  - (b) NoDeletion » NoCodaCluster
  - (c) NoEpenthesis » NoCodaCluster
  - (d) NoEpenth » NoCoda *and* NoEpenth » NoCodaClust
  - (e) NoDeletion » NoCoda *and* NoDeletion » NoCodaClust

3. Informative losers and ranking arguments

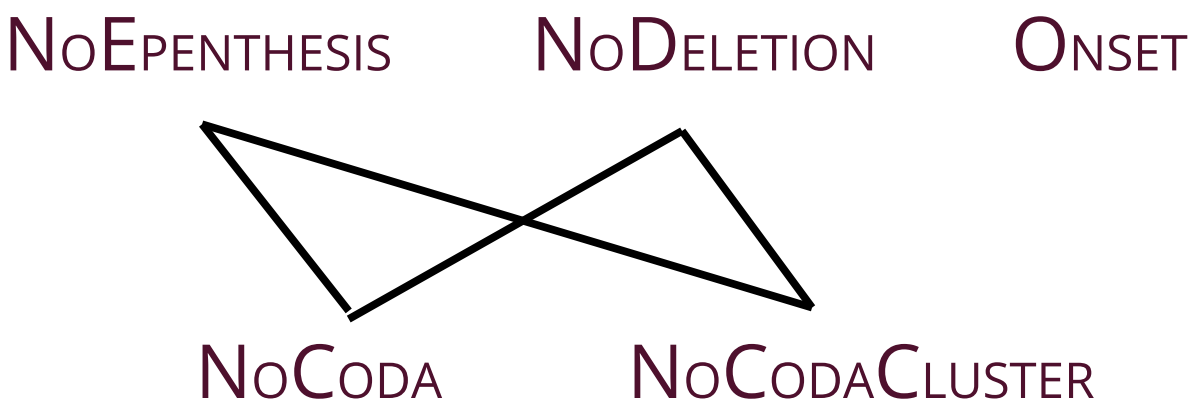
- Combining these rankings in a Hasse diagram
  - Try it!

(b) NoDeletion » NoCodaCluster
(c) NoEpenthesis » NoCodaCluster
(d) NoEpenth » NoCoda *and* NoEpenth » NoCodaClust
(e) NoDeletion » NoCoda *and* NoDeletion » NoCodaClust

3. Informative losers and ranking arguments

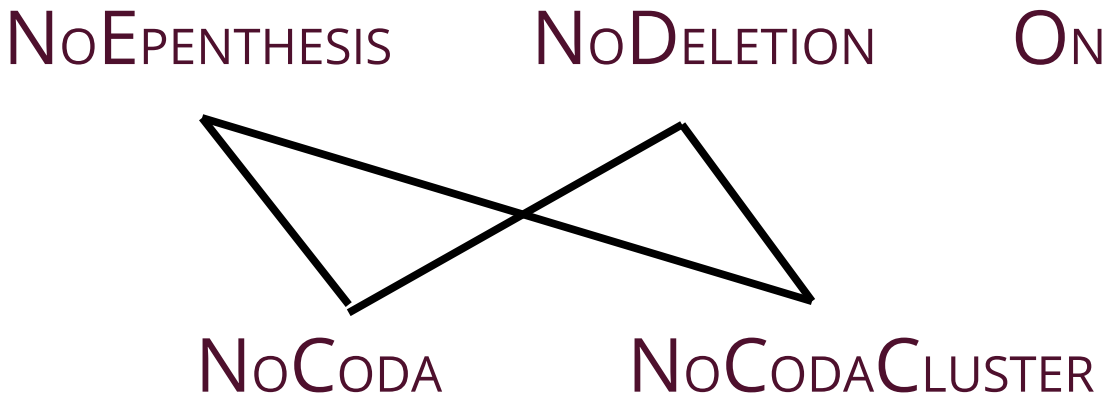
- Combining these rankings in a Hasse diagram

(b) NoDeletion » NoCodaCluster
(c) NoEpenthesis » NoCodaCluster
(d) NoEpenth » NoCoda *and* NoEpenth » NoCodaClust
(e) NoDeletion » NoCoda *and* NoDeletion » NoCodaClust



3. Informative losers and ranking arguments

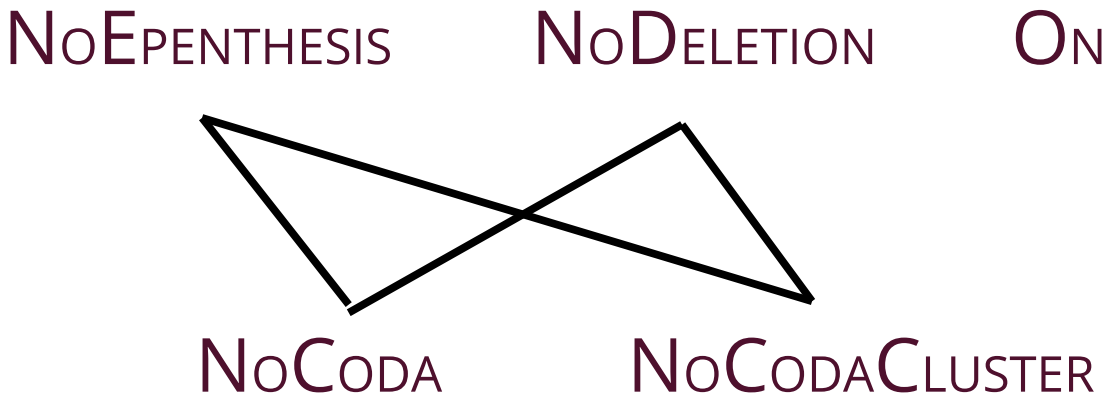
- Combining these rankings in a Hasse diagram



- Note: We have no information here about Onset
  - It is not always possible to rank all constraints
  - Check: Are there additional informative losers?
  - Sometimes, looking at a different input (a different form from the data set) will help find more rankings

3. Informative losers and ranking arguments

- Combining these rankings in a Hasse diagram



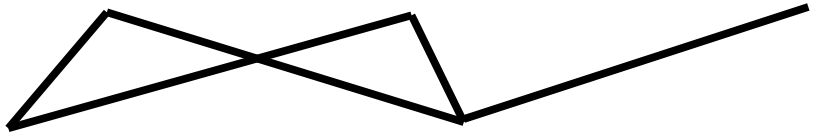
Something interesting we can see here:

- NoCoda is lower than NoEp and NoDel; codas survive
- But what did we conclude earlier about NoCoda vs. NoOnsetCluster?

4. Combining all the rankings

- All rankings proven using /ɪglu/

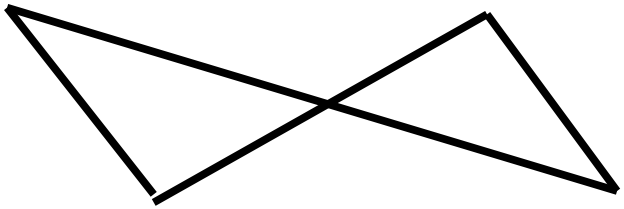
NoEpenthesis NoDeletion NoCoda



Onset NoOnsetCluster

- All rankings proven using /fild/

NoEpenthesis NoDeletion Onset

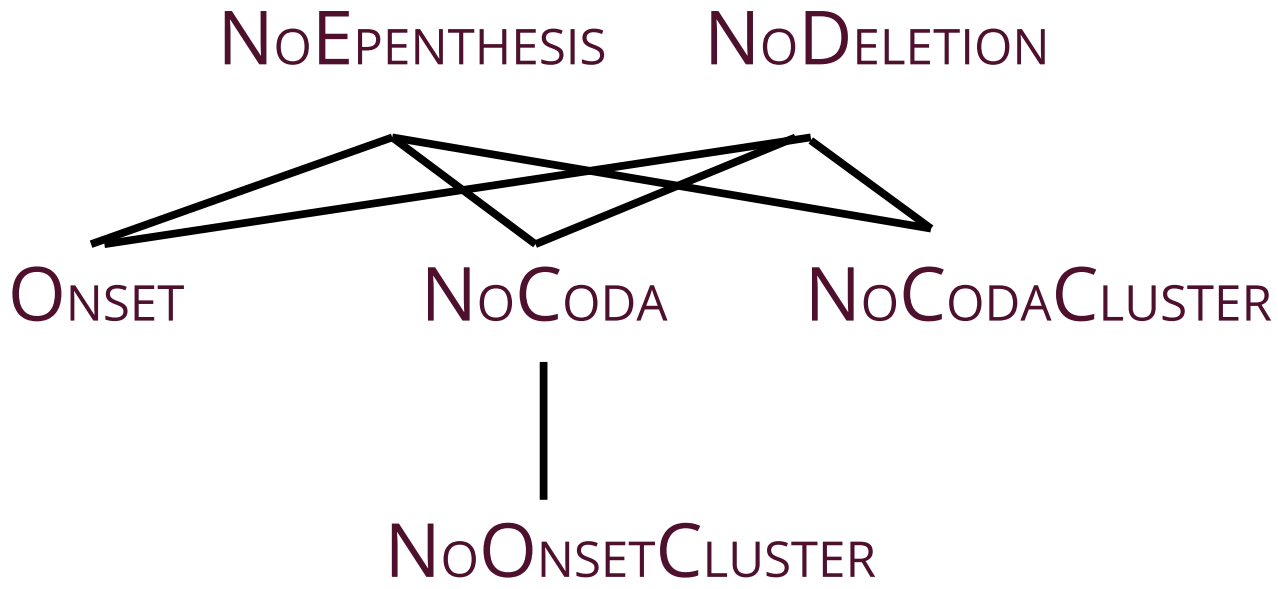


NoCoda NoCodaCluster

- What overall ranking can we prove here for English?

4. Combining all the rankings

- What overall ranking can we prove here for English?



4. Combining all the rankings

- Constraints can be **dominated** but still make a difference!
  - Example: NoCoda is lower than NoEp and NoDel
    - This means **codas survive**
  - But NoCoda is higher than NoOnsetCluster
    - This means **codas are avoided** when faithfulness is not at stake

5. For next time

- We have been asking the question:
  - Given an input and the winning output,
  - how does this language rank its constraints?

  This lets us **analyze a specific language**

- The OT approach allows us to ask another question:
  - Given an input and a ranking,
  - what candidate would win?

  This allows us to test claims about the constraints in the **universal constraint set** — what kinds of languages are we **predicting** to be **possible**?