THE MORPHOLOGY, SYNTAX, AND PHONOLOGY OF GENDER ASSIGNMENT

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LLF Course: Lecture 1
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1 INTRODUCTION

A typical definition of grammatical gender is in (1).

(1) Grammatical gender is:
i. the sorting of nouns into two or more classes (e.g., masculine and feminine);
ii. reflected by agreement patterns on other elements (e.g., adjectives, verbs)
iii. assigned depending on animacy, human-ness, and/or social gender identity for humans/biological sex for animals, for at least a subset of animate nouns
(Kramer 2015:70; based on Hockett 1958:231, Corbett 1991)

Nominal properties can correlate with genders (Corbett 1991 *inter alia*) = gender assignment

(2) a. Semantic properties (e.g., "nouns associated with female entities are feminine")
b. Morphological properties (e.g., "nouns that end in the suffix *–t* are feminine")
c. Phonological properties (e.g., "nouns that end in a stressed vowel are feminine")
d. No properties (arbitrary gender assignment; Kramer 2020)

- (2)b and (2)c are sometimes called "formal" gender assignment – but I argue that they should be carefully distinguished (also, the term "formal" here can be confusing)

<u>This Course</u>

- Start by examining the phenomenon of gender assignment carefully (what semantic factors? nature of morphological assignment? evidence in favor of arbitrary gender assignment?)
- Zoom in on (2)c: phonological gender assignment (PGA)
  - There is copious evidence for semantic and morphological gender assignment, but the evidence for phonological gender assignment is much more difficult to pin down
  - Whether PGA is attested has important implications for morphological theory. Preview:
    - Classic generative lexicon: gender assigned pre-syntactically where phonological information is available, compatible with PGA
    - Non-lexicalist theories of morphology (e.g., Distributed Morphology): gender assigned before phonological content is available; PGA predicted to be difficult at best

Structure for the Course (**tentative**!)

- Lecture 1 (today):
  - The nature of gender assignment
  - The importance of PGA in deciding between morphological theories (as time permits)
- Lecture 2 (Fri June 21st):
  - Preliminary results from cross-linguistic survey of languages with (alleged) PGA
  - Many brief case studies of languages with alleged PGA where it is better analyzed as morphological gender assignment
- Lecture 3 (Wed June 26th):
  - Gender and declension class: Afar (Cushitic) case study
  - Gender and phonologically-determined agreement: Guébie (Kru) case study
- Lecture 4 (Wed July 3rd):
  - And of course, what about French?
  - A broader view: nominal classification (gender, classifiers, declension class)

➢ NB: the timing is flexible!

Structure for Lecture 1:

- Breaking down the definition of grammatical gender in (1) (Section 2)
- Examining the kinds of grammatical gender assignment
  - Semantic (Section 3)
  - Nonsemantic: morphological, phonological and arbitrary (Section 4)
- The puzzle of phonological gender assignment (Section 5; as time permits)

==========***QUESTIONS? COMMENTS? REQUESTS?***==========

2 DEFINING GRAMMATICAL GENDER

Some basics about gender

- 2.1 Defining Grammatical Gender across Languages
- 2.2 Defining Grammatical Gender Morphosyntactically

2.1 Defining Grammatical Gender across Languages

Let's see that definition again:

(3) Grammatical gender is:
  (i) the sorting of nouns into two or more classes;
  (ii) reflected by agreement patterns on other elements;
  (iii) assigned depending on animacy, human-ness, and/or social gender identity for humans/biological sex for animals, at least for a subset of nouns
  (Kramer 2015:70, 2020:46; based on Corbett 1991, *inter alia*).

Clause (i): grammatical gender is fundamentally a kind of noun classification in that it sorts nouns into different groups.

Clause (ii): different genders trigger distinct agreement marking on elements like determiners, demonstratives, adjectives, and verbs, depending on the language.

(4) a. lam-wa
cow-DEF.F
'the cow'

b. bäre-w
ox-DEF.M
'the ox'

[Amharic]

There are other types of noun classification attested in natural language:

- Declension class: different types of nouns have different types of nominal inflection

Table 1: Declension Classes I and II, Masculine Singular Nouns, Russian

	Declension Class I: *zavod* 'factory.M'	**Declension Class II: *muščin* 'man.M'**
Nominative	zavod-∅	mušč**i**n-a
Accusative	zavod-∅	mušč**i**n-u
Dative	zavod-u	mušč**i**n-e
Genitive	zavod-a	mušč**i**n-y
Instrumental	zavod-om	mušč**i**n-oj(u)
Locative	zavod-e	mušč**i**n-e

(Alexiadou and Müller 2008:105)

- Classifiers: free-standing morphemes that reflect some semantic property of the noun, most often used with numerals; different types of nouns appear with different types of classifiers

(5) a. sa-**urang** padusi
one-**CLF.HUM** woman
'one woman'

b. duo **ikue** anjiang
two **CLF.ANIMAL** dog
'two dogs'

[Minangkabau]

c. tigo **batang** pituluik
three **CLF.LONG** pencils
'three pencils' (Gil 2013)

Grammatical gender = different types of nouns trigger different types of agreement patterns

- Agreement is what distinguishes gender from other kinds of noun classification
- There is no "declension class agreement" in natural language (to the best of my knowledge)
- Nouns with different classifiers generally do not trigger different agreement patterns[1]

Back to (3), Clause (iii): [gender is] "assigned depending on animacy, human-ness, and/or social gender for humans/biological sex for animals, at least for a subset of nouns"

- Rooted in a major typological discovery: Semantic Core Generalization (see §3)

[1] Side note: there has been much recent typological work on languages that have both gender systems and classifier systems (see e.g., Fedden and Corbett 2017, 2018, Allassonnière-Tang and Kilarski 2020), which can complicate drawing a clean line between genders and classifiers.

- Novel addition to typical typological definition – why put it in?

Clause (iii) differentiates gender from other kinds of agreement in natural language.
- Number: sorts nouns into classes (singular, plural), different numbers trigger different agreement patterns, but associated with nouns based (roughly) on cardinality
- Person: sorts (pro)nouns into classes (1st, 2nd, 3rd), different persons trigger different agreement patterns, but associated with nouns based on discourse participant status
- Case: sorts nouns into classes (nom, acc, etc.), different cases trigger different concord patterns, but associated with nouns based (roughly) on their syntactic context

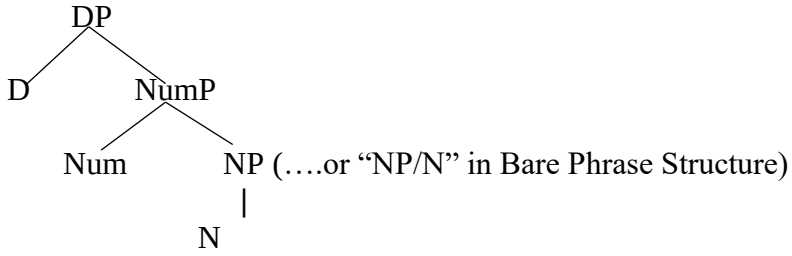
Quick Recap: gender is…
- a kind of noun classification
- distinguished from declension class and classifiers in that it classifies nouns in terms of different agreement patterns
- distinguished from other kinds of agreement in that is assigned to at least a subset of nouns based on animacy, human-ness and/or social gender ← will dive much more into this in §3

2.2 Defining Grammatical Gender Morphosyntactically

Morphosyntactically, grammatical gender is a feature (+/-FEM, +/-ANIM, etc.). The details of this feature (privative vs. binary, default values, etc.) must be left for another day!

But today we ask: where is gender located in the syntactic structure of a DP?

(6)



Diagnostic: assuming the Mirror Principle (Baker 1985), what does the order of gender affixes with respect to other affixes in the DP indicate about the position of gender in the structure?

(7) a. tigr-ess-es
tiger-FEM-PL

b. arog-it-ottʃ-u
old-FEM-PL-DEF
'old women' (Leslau 1995:354)

[Amharic]

Two options we'll focus on today:
- Gen(der)P (projected between NP and NumP)
- Gender on N

This is an over-simplification, but (again, sadly) we do not have time to cover everything
- Gender features have been proposed to either be on Num or on D for particular languages (see e.g., Ritter 1993, Déchaine 2019)

- Gender features have been proposed to be in two different locations at the same time (due to "hybrid agreement" where a noun triggers agreement in two different genders varying by agreement target; see e.g., Pesetsky 2013)

Option 1: is there a Gen(der)P? Probably not

- There is no strong empirical evidence for it
  - GenP is not required to account for gender affixes (see below)
  - Evidence presented in support of GenP in the previous literature is not convincing
    - For ex. Picallo 1991: Catalan nouns are inflected for gender and number:

(8) a. el gos-∅ b. els goss-o-s **[Catalan]**
the.M dog-M the.MPL dog-M-PL

c. la goss-a d. les goss-e-s
the.F dog-F the.FPL dog-F-PL (Picallo 1991:280; glossing by RK)

- Picallo assumes that inflectional elements head their own projections, so since gender is expressed as inflection in Catalan, there must be a GenP
- However, the "gender inflection" in Romance languages actually expresses declension class, not gender (Harris 1991, Alexiadou 2004)
  - Spanish: this kind of inflection found on adverbs (which lack gender)
  - The inflection does not correlate well with gender (e.g., nouns can have the "feminine" final vowel and trigger masculine agreement and vice versa, some final vowels occur with both genders, etc.).
- Therefore, the vocalic endings on Romance nouns are not gender inflection, and this piece of evidence for projecting a GenP loses its force

- For further arguments against previous evidence for GenP; see Ritter 1993, Alexiadou 2004, Alexiadou, Haegeman and Stavrou 2007, Kramer 2015, 2016

- There is also conceptual evidence against GenP
  - In general, a syntactic projection is well-motivated if…
    (a) it is associated with multiple syntactic effects (a feature in its head participates in agreement, serves as a landing site for movement)
    (b) there is evidence for it at the semantic interface and at the morphophonological interface (Chomsky 1995:355)

  - For example, there is evidence for a number projection Num(ber)P because…
    (a) number features participate in agreement and Num is a landing site for N movement (see e.g., Ritter 1991 on Hebrew; Valois 1991:53 on French).
    (b) number features have consistent semantic effects, and most languages distinguish singular and plural morphologically (Dryer 2013).

  - GenP is not very well-motivated according to these criteria.
    (a) only a single clear syntactic effect (agreement)

(b) In many gender systems, gender only intermittently affects interpretation and only indirectly affects morphophonology
  - There might not be a language where gender is consistently interpretable and consistently pronounced on nominals. This is in stark contrast to, say, the consistent marking and interpretation of plural nouns in many languages.

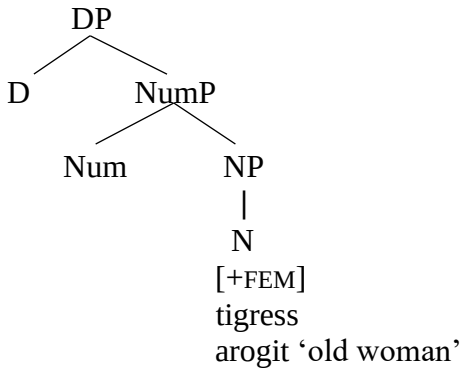
- Overall, then, there is little compelling empirical or conceptual evidence for GenP, so let's not posit it! (aesthetics/heuristics: do not add extra projections unless well-justified)

Since gender has a low position in the DP but does not project a GenP…

…maybe the gender feature is on N (head of NP)!

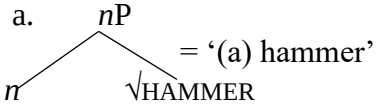
This is the classic generative lexicon approach to gender (see e.g., Carstens 2010, 2011):
- Grammatical gender is either listed on nouns in the pre-syntactic lexicon or assigned to nouns via lexical rules
- Some of the lexical gender assignment rules add gender affixes, e.g., *-ess*
- Therefore, nouns enter the syntactic derivation with a gender feature (and sometimes a gender affix)

(9)



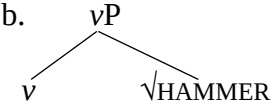
However, where is gender in a non-lexicalist framework like Distributed Morphology?
- The answer depends on the key idea of "lexical decomposition" (Marantz 1997, 2001 and many non-lexicalists since)
- Lexical decomposition = lexical categories (nouns, verbs, and adjectives) are decomposed into two morphemes:
  - a category-neutral root: √
  - a categorizing head (nominalizer *n*, verbalizer *v*, or adjectivalizer *a*)

(10) a.



= '(a) hammer'

b.



= '(to) hammer'

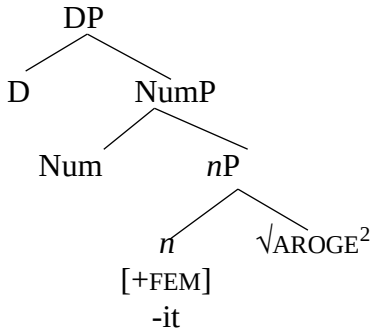
- What's the advantage of doing lexical decomposition?
  - A category-neutral root can combine with various categorizing heads to create elements that share a core pronunciation/meaning but have different lexical categories

- Particularly compelling for Semitic languages, where words are transparently formed from consonantal roots and categorizing elements (see e.g., Arad 2003, 2005)

How does this help with gender?

- *n* can serve as the location for gender features (Kihm 2005, Ferrari 2005, Lowenstamm 2008, Acquaviva 2009, Kramer 2009, 2015)

(11)



- Gender is assigned syntactically through the merging of a *n* that contains a gender feature with a category-neutral root
- Some attractive properties of this approach:
  - Gender is fundamentally associated with the property of being a noun
  - Nominalizing morphemes are often associated with specific genders (e.g., *-it* in Amharic, but see also *-schaft* in German which forms feminine abstract nouns)

Recap: syntactically, gender features are located on N in lexicalist approaches and *n* in Distributed Morphology

Very minimal interim summary:

- Gender is defined as in (3)
- Gender is syntactically located on N or *n* depending on the framework

==========***QUESTIONS? COMMENTS? RESPONSES?***==========

Let's dive a little deeper into the empirical side of gender assignment across languages:

- §3: semantic gender assignment
- §4: nonsemantic gender assignment

3 SEMANTIC GENDER ASSIGNMENT

Clause (iii) of (3): grammatical gender is always assigned to at least a subset of nouns based on animacy, human-ness and/or social gender identity/biological sex.

[2] You might be wondering why this root is *aroge-* and not *arog-*. The short answer is: hiatus resolution.

- In other words, gender is assigned based on the interpretation of the noun = semantic gender assignment!
- Very important side note: 'social gender' is used here for the property of human beings indexed by grammatical gender, acknowledging that 'gender' in humans is a social construct (Butler 1990) and that the gender binary which is reflected in grammatical gender is artificial

Clause (iii) is often called the **Semantic Core Generalization** (Corbett 1991:8, Kramer 2020:47)
- Every language with grammatical gender has a 'core' set of nouns that it assigns gender to semantically
- The Semantic Core Generalization is one of the most important discoveries about grammatical gender assignment because…
- …it holds in every language with a grammatical gender system - a cross-linguistic universal!

Let's take a look at some examples of semantic gender assignment using the properties of the Semantic Core Generalization:

Animacy: Wardaman (non-Pama-Nyungan; Australia)
- In (12), the adjectival agreement prefixes vary based on the animacy of the noun.

(12) a. **yi**-man yi-biwan b. **wu**-ma-wa yondorr-wa **[Wardaman]**
ANIM-good ANIM-man INAN-good-ABL road-ABL
'good man' 'good road (abl.)'
(Merlan 1994:78)

Human-ness: Guébie (Kru; Côte d'Ivoire).
- In (13), the final vowel of 'big' varies depending on whether it modifies 'man' or 'goat.'

(13) a. ŋudi$^{3.1}$ kadɔ$^{4.2}$ b. wɔlɪ$^{2.2}$ kadɛ$^{4.2}$ **[Guébie]**
man big.HUM goat big.NONHUM
'a big/important man' 'a big goat'
(a: Kramer and Sande 2023:8, b: Hannah Sande, p.c.)[3]

Social Gender Identity (Humans): Romanian
- In (14), 'man' and 'woman' trigger different forms of the indefinite article.

(14) a. **o** femeie b. **un** bărbat **[Romanian]**
a.FSG woman a.MSG man
'a woman' 'a man' (Maurice 2001:231)

Biological Sex (Animals): Amharic assigns grammatical gender to most animals based on biological sex, like 'rhinoceros' in (15).

[3] Superscript numerals indicate tones where higher numerals indicate higher tones. Superscript numerals separated by periods represent tones assigned to specific syllables in order.

(15) a. awraris-u b. awraris-wa **[Amharic]**
rhinoceros-DEF.M rhinoceros-DEF.F
'the (male) rhinoceros' 'the (female) rhinoceros' (Kramer 2015:17)

Combination: Tamil (Dravidian; India)

- Masculine gender to male humans, feminine gender to female humans, and neuter to all other (Asher 1982:136-7) = both human-ness and social gender identity

(16) a. vaɳɳaan varraan b. lakʂmi varraa **[Tamil]**
washerman come.PRES.3MSG Lakshmi come.PRES.3FSG
'The washerman's coming.' 'Lakshmi is coming.'
(Asher 1982:1; glossing original)

c. pacu paalu kuʈukkum
cow milk give.FUT.3NSG
'Cows give milk.' (Asher 1982:156; glossing original)

Languages can (but need not) also use other semantic properties to assign gender: Table 2

Table 2: Additional Semantic Properties Used for Gender Assignment (non-exhaustive)

Property	**Example Language**	**Language Info**	**Source**
Animal	Nzakara	Niger-Congo (Adamawa-Ubangian); Central African Republic	Tucker and Bryan 1966: 146-7
Type of animal	Ngan'gityemerri (canines)	Daly languages; Australia	Reid 1997:181
Plant/tree	Luvale	Niger-Congo (Bantu); Angola and Zambia	Horton 1949:27
Function	Dyirbal (edible food)	Pama-Nyungan; Australia	Plaster and Polinsky 2010:123-124
Material	Tsez (paper)	Nakh-Daghestanian (Tsezic); Russia and Georgia	Plaster, Polinsky and Harizanov 2013:165
Shape	Alamblak (tall and/or long narrow things)	Sepik; Papua New Guinea	Bruce 1984:97
Type of derived noun	• Italian (deadjectival nouns) • Oromo (diminutive nouns)	• Indo-European (Romance); Italy • Afroasiatic (Cushitic); Ethiopia	• Beard 1990:162 • Feleke and Lohndal 2023

Two caveats

- The complete list of semantic properties used to assign grammatical gender is yet to be assembled (most in-depth discussions: Corbett 1991:30-32, Aikhenvald 2000:275-283).

- I do not include size in Table 1 because it can be difficult to distinguish gender assignment based on size from gender assignment based on augmentative/diminutive derivation.
    - For ex., if there is a gender that correlates with 'big' nouns, is that gender assigned due to size or are these nouns actually morphologically-complex augmentatives and the augmentative marker (which might be null) has a gender feature?
    - Answer will depend on the rest of the morphological system of the language, the distribution of those nouns, etc.

Table 2 = correlations between a semantic property P and a grammatical gender G, but it is also important to determine whether P is necessary and/or sufficient for the assignment of G

- I illustrate the possibilities here with data from Bantu languages.
    - Following much previous research, I refer to Bantu grammatical genders as numbered noun classes that consist of singular/plural pairs.
    - For example, Class 1/2 is the set of nouns with Noun Class 1 marking in the singular and Noun Class 2 marking in the plural.

Table 3: Necessary and Sufficient Conditions for Gender Assignment

	Sufficient	**Not sufficient**
Necessary	Human-ness in re: Class 1/2 in Kinyamwezi[4] • Class 1/2 contains only human nouns • All human nouns are found in Class 1/2	Animacy in re: Class 1/2 in Kinyamwezi • All nouns in Class 1/2 are animate • Not all animate nouns are in Class 1/2
Not necessary	Being a tree in re: Class 3/4 in Luvale[5] • Class 3/4 contains all tree-denoting nouns • Class 3/4 contains other kinds of nouns as well	Being an animal in re: Class 9/10 in Vengo[6] • Class 9/10 contains some animal nouns • Animal nouns are also found in other classes • Class 9/10 contains non-animal nouns as well

Necessity and sufficiency conditions differentiate between properties that define a gender (Corbett 1991) and properties that do not.

- A necessary and sufficient assignment property defines a gender: the gender is assigned only to nouns that have that property and only nouns with that property are assigned that gender.
- In contrast, a sufficient-but-not-necessary assignment property does not define a gender because the gender is assigned not only to nouns with that property but also to other nouns.

[4] Kinyamwezi (Tanzania) source: Maganga and Schadeberg 1992:69
[5] Luvale (Angola and Zambia) source: Horton 1949:27
[6] Vengo (Cameroon) source: Schaub 1985:174. NB: this language is sometimes called Babungo.

- Similarly, a necessary-but-not-sufficient property does not define a gender because, while the gender is assigned to nouns with that property, many other nouns have the same property without being assigned that gender.
- (Naturally, neither-necessary-nor-sufficient properties do not define genders either, expressing only very weak correlations between a property and a gender.)

Determining which properties define genders allows for finer differentiation among properties used for semantic gender assignment

- The properties in the Semantic Core Generalization can all define genders
- It is much less clear whether the properties in Table 2 are able to do so = empirical work to be done in the future!
- And what are the theoretical ramifications? Do properties that define genders have a different formal status somehow? = theoretical work to be done in the future!

One final component of semantic gender assignment: grammatical gender can be assigned based (roughly speaking) on the semantic properties of the noun's referent.

- Example: Greek - some profession nouns trigger masculine agreement when they refer to a man, but feminine agreement when they refer to a woman, (17).

(17) a. o odigos 'the.MSG driver' b. i odigos 'the.FSG driver' **[Greek]**
c. o musikos 'the.MSG musician' d. i musikos 'the.FSG musician'
e. o ipurgos 'the.MSG minister' f. i ipurgos 'the.FSG minister'
(Alexiadou 2004:40)

- Example: Amharic, (15) for biological sex of animal referent (*awraris-u* 'male rhino' vs. *awraris-wa* 'female rhino')
- This state of affairs particularly interesting because it seems the same noun can be assigned multiple genders – an often under-emphasized fact!

Recap:

- Gender is assigned semantically on the basis of animacy, or human-ness, etc. to at least a subset of nouns(Semantic Core Generalization)
- Other semantic properties can also play a role, but only those mentioned in the Semantic Core Generalization are confirmed to be able to define a gender
- Gender can also correlate with the social gender identity / biological sex of the referent

==========***QUESTIONS? COMMENTS? RESPONSES?***==========

4 NONSEMANTIC GENDER ASSIGNMENT

Three types of nonsemantic gender assignment:

- Morphological (Section 4.1)
- Phonological (Section 4.2)

- Arbitrary (Section 4.3)

4.1 Morphological Gender Assignment

In morphological gender assignment, the morphological structure of a noun (the presence of a particular affix) determines its gender.

(18) **Morphological Gender Assignment (example)**
All nouns ending in the suffix *-it* are feminine in Amharic.

However, I argued in Kramer 2020 that morphological gender assignment based on derivational morphology (i.e, nominalization) is actually semantic gender assignment.

- Nominalization has a semantic effect: (i) converting a non-nominal to a noun or (ii) adding extra semantic information to a noun (location, diminutive, etc.)
- The semantic effect correlates with a particular grammatical gender = semantic gender assignment
- Evidence for this approach is that the same kind of nominalization operation can correlate with the same grammatical gender across different affixes
    - For example, in Italian, deadjectival nominalizations are feminine regardless of the nominalizing suffix (Beard 1990:162)

(19)	a. la	fals-ità	the.FSG	false-ness	**[Italian]**
	b. la	facond-ia	the.FSG	fluid-ity	
	c. la	lucent-ezza	the.FSG	shini-ness	
	d. la	brav-ura	the.FSG	capabil-ity	
	e. la	stupid-aggine	the.FSG	stupid thing	(Beard 1990:162)

- If grammatical gender assignment is based on the identity of the affix, then we miss the generalization that deadjectival nouns are feminine in Italian.

What about nominalizers that (seem to) have the same interpretation but trigger agreement in multiple genders?

- Prediction: when a closer look is taken, these nominalizers will turn out to have different interpretations.
- Example: denominal locatives in BCS

(20)	a. knjiga	‘book’	d. knjiž-nica	‘library-LOC.F’	**[BCS]**
	b. raž	‘rye’	e. raž-iste	‘rye field-LOC.N’	
	c. guska	‘goose’	f. gus-injak	‘goose pen-LOC.M’	(Beard 1990:164)

- Beard has argued that each of the suffixes has a slightly different interpretation
    - Feminine *-nica* is the ‘in locative’ interpreted as ‘enclosed place of nP’
    - Neuter *-iste* is the ‘on locative’ interpreted as ‘open place of nP’
    - The masc suffix is used for any ‘in locative’ derived from an animate noun
- Different interpretation = different *n* = (potentially) different gender

(21) **Locative Nominalizing Morphemes in BCS**
a. *n* [IN-LOC][+FEM]
b. *n* [ON-LOC][NEUTER][7]
C. *n* [IN-LOC][ANIMATE][-FEM]

In BCS, the locative nominalizers are three different suffixes = plausible that they are underlyingly three different *n*'s.

(Digression: what about a nominalization process that seems to have the same interpretation, **and uses the same suffix,** but triggers agreement in different genders?

- Example: Amharic agentive deverbal nominalizations

(22) a. särra-**täññä**-w **[Amharic]**
work-**NMLZ-**DEF.M
'the male worker' (Hailu 1966:88)

b. yä-bet särra-**täññä**-wa
of-house work-**NMLZ-**DEF.F
'the female house worker (= maid)'[8]

- NB: this pattern is also unexpected under a traditional view of morphological gender assignment where gender is assigned based on the affix.
- Kramer (2015) approach in Distributed Morphology:
  - These nouns contain two different *n*'s:

(23) a. *n* b. *n*
[-FEM] [+FEM]
[AGT] [AGT]

  - The suffix *–(t)äññä* is underspecified for gender

(24) *n*, [AGT] ↔ *-äññä*

  - Feature bundles like (23) are matched with vocabulary items like (24) via (25)

(25) **Subset Principle (Halle 1997)[9]**
The phonological exponent of a vocabulary item is inserted into a feature bundle if the item matches all or a subset of the grammatical features in the feature bundle... Where several vocabulary items meet the conditions for insertion, the item matching the greatest number of features specified in the feature bundle must be chosen.

[7] In this example, neuter is represented as a gender feature for clarity but I have argued in previous work (Kramer 2015) that neuter is the absence of gender features.
8 Addis Admass News, http://www.addisadmassnews.com
[9] Lightly modified for terminological consistency and brevity

- This allows for a vocabulary item to be inserted that does not match all of the features in the syntactic feature bundle, if it matches the most features overall
- So, assuming that no other vocabulary items have an [AGT] feature and a *n* category feature, then (24) will be inserted regardless of the gender feature

Upshot: morphological gender assignment due to derivational morphology likely reduces to semantic gender assignment.

Another Kind of Morphological Gender Assignment (maybe): Declension Class

- Grammatical gender can determine declension class membership, e.g., in Spanish

(26) **Declension Class Membership in Spanish**
a. Masculine nouns have declension class I (realized as *-o*), unless otherwise specified
b. Feminine nouns have declension class II (realized as *-a*), unless otherwise specified
(Harris 1991, Kramer 2015)

- The reverse does not hold! Declension class does not determine gender in Spanish because:
  - Declension class inflection is also found on adverbs (which lack gender)
  - Declension class does not correlate well with gender (e.g., there are some masculine nouns in Class II, some declension classes occur with either gender, etc.).
  - See Harris 1991, Alexiadou 2004, Kramer 2015

- However, is there **any** language in which declension class membership determines gender assignment? If so, this would be a kind of morphological gender assignment
  - Corbett 1991: yes, Russian
  - Beard 1995: Russian declension class does not determine gender assignment.
  - It would take us too far afield to go into the debate here! See Fraser & Corbett 1995, Doleschal 2000, Nikunlassi 2000, Müller 2004, and Steriopolo 2018

Food for Thought:
- If declension class membership can determine grammatical gender, then morphological gender assignment is attested in natural language
- But if it cannot, then morphological gender assignment does not exist (since it reduces to semantic gender assignment otherwise)

4.2 Phonological Gender Assignment

Phonological gender assignment occurs when a particular gender correlates with a particular phonological property of a noun…

- For ex: ending/beginning/containing a particular kind of segment (e.g., feminine if the noun ends in [b]), having a certain syllable structure (e.g., feminine if the noun is CVC)
- …not a particular morpheme

Consider the gender system of Hausa, a common example of phonologically assgned gender (see e.g., Corbett 1991, Thornton 2009).

- Hausa has two genders: masculine and feminine.
- Masculine and feminine gender are assigned semantically to humans and higher animals

(27) **Semantic Core for Hausa**
a. Male humans and higher animals are masculine.
b. Female humans and higher animals are feminine. (based on Newman 2000:200-201)

In the remaining feminine nouns, gender correlates with a phonological property: final *-ā* (Newman 1979, 2000:208)

(28) **Feminine Nouns in Hausa (Inanimates/Lower Animates)**

a.	fuskà	'face'	
b.	àkuyà	'goat'	
c.	gǔguwà	'whirlwind'	
d.	kibiyà	'arrow'	
e.	kujērà	'chair'	(Newman 2000:208)

In contrast, masculine nouns can end in any vowel (Newman 1979:197-198; Hausa disallows word-final consonants generally (Newman 2000:404))

(29) **Masculine Nouns in Hausa (Inanimates/Lower Animates)**

a.	hancì	'nose'	(Newman 2000:201)
b.	zōbè	'ring'	(Newman 2000:213)
c.	dàbīnò	'date (tree)'	(Newman 2000:201)
d.	duhǔ	'darkness, denseness (of forest)'	(Newman 2000:202)
e.	kadà	'crocodile'	(Newman 2000:209)

In Hausa, then, feminine gender is correlated with a phonological property, namely, what vowel the noun ends in.
- The correlation is unidirectional: if a noun has feminine gender, then it likely ends in *-ā*.
- It is not the case that if a noun ends in *-ā*, then it has feminine gender, because masculine nouns can also end in *–ā* (e.g., (29)e).

Key questions:
- Given the directionality, is the final *–ā* is a morpheme (rather than a phonological component of the noun)?
- What phonological properties are used for gender assignment in general across languages?
- We will return to this question in the next session!

4.3 Arbitrary Gender Assignment

Many languages contain nouns where gender is not plausibly assigned semantically, morphologically or phonologically.

Instead, I maintain that in these cases gender is assigned arbitrarily – it correlates with no particular property of the noun (synchronically).

- Example: Spanish, arbitrary gender assignment to nouns that are **not** assigned gender semantically (Kramer 2020:52-53; see also Harris 1991:36)

(30) **Semantic Core for Spanish**
a. Male humans and higher animals are masculine.
b. Female humans and higher animals are feminine.

(31) **[Spanish]**

Masculine		Feminine	
a. libro	'book'	g. pluma	'pen'
b. domicilio	'home'	h. residencia	'residence'
c. paño	'cloth'	i. mano	'hand'
d. amor	'love'	j. flor	'flower'
e. plátano	'banana'	k. manzana	'apple'
f. caso	'case'	l. casa	'house'

(Kramer 2020:53)

- No semantic gender assignment because no interpretation of male/femaleness[10]
- No morphological gender assignment: declension class does not determine grammatical gender in Spanish
- No phonological gender assignment: masculine *caso* 'case' and feminine *casa* 'house' are phonologically identical (modulo the declension class suffix)
- I conclude these nouns are assigned gender arbitrarily: masculine or feminine for no reason / with no rule that is relevant to the synchronic grammar.

Food for thought: there is sometimes (tacit) resistance to the idea of arbitrary gender assignment (from a range of perspectives: Corbett 1991, Plaster, Polinsky and Harizanov 2013, etc.).

- Thoughts?

Final Kind of (Potentially) Arbitrary Gender Assignment: Many languages contain inanimate nouns that can be assigned to either gender:

(32) **[Spanish]**

a. el cerezo	'the.MSG cherry tree'	b. la cereza	'the.FSG cherry'
c. el editorial	'the.MSG editorial'	d. la editorial	'the.FSG publishing house'
e. el paso	'the.MSG step'	f. la pasa	'the.FSG raisin'

(Kramer 2015:92-93)

Is the semantic relationship between the masculine and feminine noun systematic?

- If so, this may be semantic gender assignment, not arbitrary
- But, what counts as systematic?
- There are multiple pairs of Spanish fruits/trees where the tree is masculine and the fruit is feminine, but this does not hold over all pairs of fruits/trees (Harris 1991:36, fn.13).

[10] It also does not seem possible to weaken the interpretations of 'male-ness' and 'female-ness' such that it would be semantically coherent for masculine to be assigned to 'home,' 'cloth,' and 'love' but feminine to 'residence,' 'hand' and 'apple.

Also worth asking: do the two nouns plausibly share the same root?
- A shared root is more plausible for (32)cd than for (32)ef (cf. (17))
- Either way: arbitrary gender assignment (unless the interpretations associated with masc and fem versions of the same root hold more broadly)

Gender Assignment Recap
- Semantic gender assignment
    - Semantic core
    - Additional semantic properties
- Morphological gender assignment: reducible to semantic gender assignment? Depends on whether declension class assigns gender
- Phonological gender assignment: does it exist? We'll look into this
- Arbitrary gender assignment: attested in e.g., Spanish

==========***QUESTIONS? COMMENTS? RESPONSES?***==========

5 THE THEORETICAL IMPLICATIONS OF PHONOLOGICAL GENDER ASSIGNMENT

Why should we take a closer look at phonological gender assignment?
- Because it can distinguish between types of morphological theories!

This section: lay out that argument
- 5.1 Grammatical gender is a syntactic feature (key assumption, not often justified in the lit!)
- 5.2 Theoretical implications

5.1 Grammatical Gender is a Syntactic Feature

If gender features were only referred to by (morpho)phonological operations, then phonological gender assignment would not be problematic.

However, there is evidence that grammatical gender is a syntactic feature, i.e., a feature that is present during the syntactic derivation.

Evidence 1: gender features take part in the syntactic operation of agreement
- Agreement is conventionally understood as the establishment of a syntactic relation (see e.g., Chomsky 2000, 2001)
- By definition, grammatical gender takes part in agreement relations

(33) Grammatical gender is:
- (i) the sorting of nouns into two or more classes (e.g., masculine and feminine);
- **(ii) reflected by agreement patterns on other elements (e.g., adjectives, verbs)**
- (iii) assigned depending on animacy, human-ness, and/or social gender for humans/biological sex for animals, for at least some animate nouns

- Therefore, gender must be present during the syntactic derivation

Evidence 2: gender features are relevant for determining reference, which occurs at LF
- Determining the referent of a pronoun often depends on its gender features

(34) Katara$_i$ told Sokka$_j$ that she$_i$/he$_j$ needs to go.

- Even gender features for inanimate-denoting nouns are relevant for determining reference

(35) Où est ma cuiller? **Elle** est sur la table. **[French]**
where is my.F spoon.F 3F.SG is on the table
'Where is my spoon? It is on the table.' (Price 2007:139-140)

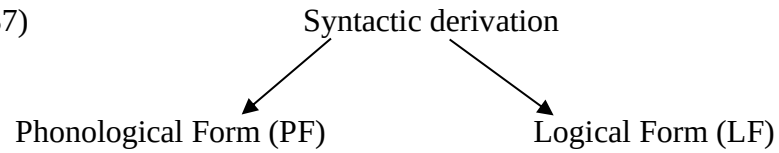
- Gender can also determine whether a pronoun receives a bound or free interpretation (Picallo 2008:48-49)

(36) Quan un venedor té una cadira$_i$, la$_i$ / el$_{*i/j}$ ven **[Catalan]**
when a seller has a chair.F, it-F.SG / it-M.SG sells
'When a seller has a chair, he sells it.' (slightly simplified from Picallo 2008:48, (1a))

  - Feminine = bound; masculine = free

- How does this show gender features are syntactic? I assume the structure of the grammar (37):

(37)



- If a feature is present at LF, it either was present in the syntax or was inserted at LF
- Gender is not inserted at LF because it also affects PF (e.g., gender suffixes)
- In general, features with both PF and LF effects = syntactic features (e.g., number, person)

Overall, then, there is evidence that gender features are present in the syntactic derivation, but that has some interesting theoretical implications in the light of PGA…

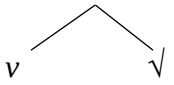
5.2 Theoretical Implications

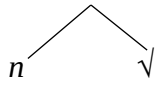
Since gender features are present during the syntactic derivation, gender assignment must occur either before the syntactic derivation or during the syntactic derivation.

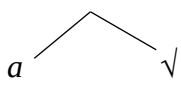
- Before: gender assigned via lexical rules in a generative lexicon (see e.g., Zwicky 1987, Harris 1991, Aronoff 1994:116, Carstens 2010, 2011)

(38) **Human Gender Lexical Rule in Spanish**
[FEMALE] → [FEM] / __ [HUMAN] (Harris 1991:51, (32a))

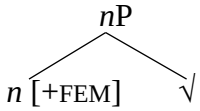
- During: a syntactic head that bears a gender feature merges with a structure (often a root)
  - As mentioned earlier, in Distributed Morphology (DM), lexical categories are often decomposed into category-neutral roots (√) and category-defining heads (*v*, *n*, *a*; Marantz 1997, 2001)

(39) a. 

b. 

c. 

  - Gender assignment in DM: *n*[GENDER] merges with a √ (see e.g., Ferrari 2005, Lowenstamm 2008, Kramer 2009, 2015)

(40) 

  - How do we constrain the distribution of roots in the context of categorizing heads?
  - Licensing conditions at the interfaces (Harley and Noyer 1998, 1999, 2000; Acquaviva 2009, Kramer 2015)
  - See also Alexiadou 2004, Picallo 2017, Kučerová 2018 *inter alia*

Recall that gender can be assigned based on the phonological properties of a noun = PGA

- See e.g., Bing 1987, Zwicky 1987, Aronoff 1994, Corbett 1991, 2006a, 2014, Corbett and Fraser 2000, Thornton 2009, Audring 2009, Kilarski 2013:20, Wälchli and di Garbo 2019

If the mechanism for gender assignment is presyntactic, it can access phonological information.

- In classic lexicalist approaches, the lexicon include phonological information in lexical entries, at least for lexical categories like nouns
- The phonological information can then be referred to in a lexical gender assignment rule (see e.g., Bing 1987, Zwicky 1987, Aronoff 1994, Dobrin 1998:74-75):

(41) **Phonological Gender Assignment Rule in Yimas**
Nouns ending in [ŋk] are assigned to gender VI. (Aronoff 1994:116)

However, in DM, PGA is difficult at best.

- The presyntactic lexicon contains abstract feature bundles and roots that both lack phonology
- These elements are manipulated during the syntactic derivation, but they are given phonological content (= exponed or realized) at PF (= Late Insertion)

(42) **Example: English Definite Determiner**

Abstract feature bundle:	→	Vocabulary Item:
[D]	Vocabulary Insertion	[D], [DEF] ↔ *the*
[DEF]		

- The Vocabulary Item must match all or a subset of the features in the feature bundle (Subset Principle in part; Halle 1997)

- Because phonological information is absent until after the syntactic derivation it is unclear how grammatical gender (a syntactic feature) could be assigned based on phonology[11]
- This problem is not necessarily specific to DM: it holds for any theory of morphology that adopts Late Insertion

Therefore, it is important to investigate phonological gender assignment (cf. Dimitriadis 1997, Dobrin 1995, 1998, Sande 2017, 2019).

- If it is attested, then this supports presyntactic gender assignment and lexicalist approaches
- If it is not attested, then this supports syntactic gender assignment and Late Insertion

And we will take up this task next time by surveying the languages that have been described as assigning gender phonologically!

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