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102. Category-Specific Effects

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Abstract

A category-specific phonological effect is a phonological phenomenon (contrast, alternation, neutralization, etc.) that is explicitly restricted by the phonological grammar to a particular lexical category or categories, such as nouns (N), adjectives (A), or verbs (V). Category-specific effects involving stress and pitch accent, tone, prosodic shape, and segmental patterns are described, and two typological asymmetries are identified: first, there is a scale of phonological privilege N>A>V, such that nouns tend to support the most contrasts and verbs the fewest, and second, there is a tendency for category-sensitive patterns to be prosodic rather than segmental. Phonology-external factors that might influence the development of category-specific phonology are reviewed. Finally, some implications of category-specific effects for issues in phonological theory are considered, including phonological nonuniformity and differences between prosodic and segmental phenomena, as well as broader questions about the morphosyntax/phonology interface and the influence of extragrammatical factors on acquisition and typology.

Keywords

category-specific phonology, lexical categories, phonological nonuniformity, morphosyntax/phonology interface, phonological typology

102.1 Introduction

In a number of languages, words of different lexical categories, such as nouns (N), adjectives (A), and verbs (V)—also known as syntactic categories, word classes, or parts of speech—are subject to different phonological patterns (Cohen 1964; Kenstowicz and Kisseberth 1977; Myers 2000; Smith 2001, 2011; Anttila 2002; Becker 2003; Bobaljik 2008; Sande, Jenks, and Inkelas 2020). This chapter introduces criteria for identifying and classifying cases of category-specific phonological effects (§102.2) and then presents a survey of case studies (§102.3) that identifies

two typological asymmetries (§102.4): a scale of phonological privilege N>A>V, such that nouns tend to support the most contrasts and verbs the fewest, and a tendency for category-sensitive patterns to be prosodic rather than segmental. The discussion closes with a review of phonology-external factors that might influence the development of category-specific phonology (§102.5) and some implications of category-specific effects for linguistic theory (§102.6). Implications for phonology include nonuniformity effects and differences between prosodic and segmental phenomena, as well as broader questions about the morphosyntax/phonology interface and the influence of extragrammatical factors on acquisition and typology.

102.2 Identifying and classifying category-specific effects

102.2.1 Identifying categories

Lexical *categories* such as nouns, adjectives, and verbs are often seen as a fundamental characteristic of human language. But when a rigorous analysis of categories is attempted, controversies arise. Can categories be systematically distinguished within a language? If so, are they distinguished by syntax, morphology, semantics, usage, or other factors? How many categories are there? Are they discrete or continuous? Is the inventory of categories consistent across languages? Is the category of a morpheme specified as part of its lexical entry, or are categories only determined in the course of the morphosyntactic derivation? For a recent sampling of approaches to questions like these from various theoretical and empirical perspectives, see van Lier (2023).

Despite these questions, it is often possible to establish reasonable criteria for distinguishing categories in a given language (Haspelmath 2023), even if particular criteria are more useful for some languages than for others. In this chapter, the identification of categories in each language follows the reference sources. The discussion focuses on the categories *noun* (N), *adjective* (A), and *verb* (V); the additional category *proper noun* (PrN) is considered in §102.4.1.

102.2.2 Identifying category-specific phonological effects

A *category-specific phonological effect* is defined here as a phonological phenomenon (contrast, alternation, neutralization, etc.) that is explicitly restricted, by the phonological grammar, to a particular lexical category or categories.

The argument that a phonological effect is category-specific is strongest when no morphosyntactic or other phonology-external explanation can account for the phonological difference between categories. But with no general consensus on how categories are defined, whether they are universal, or how they are to be formally represented, it is not feasible to confirm for every potential category-specific effect that the statement "no phonology-external explanation is available" is true in every model or framework.

The strategy pursued in this chapter is to focus on cases of category-specific phonology that are as independent as possible from the most relevant morphosyntactic factors. In particular, it is useful to identify cases where apparent category-specific phonological differences cannot be reduced to a distinction between free and bound forms (§102.2.2.1), and cases where the categories that pattern together phonologically do not also inflect for the same types of grammatical features (§102.2.2.2). The relationship between category-specific phonology and other phonology-external factors is further discussed in §102.5.

102.2.2.1 The free/bound distinction

A morphosyntactic property that often varies by lexical category is the distinction between *free* stems, which can occur as independent words, and *bound* stems, which require affixation.

The free/bound distinction is relevant for phonology because morphemes in isolation occur in different phonological environments from morphemes in complex forms. If all stems of one category are free and all stems of another are bound, an observed phonological difference between them might be due to the different surface environments of free and bound stems, needing no reference to category, as Olson (2005, 82) demonstrates for Mono (Banda) word-minimality requirements.

Another, more abstract way for the free/bound distinction to cause phonological differences is through *base-identity effects,* where morphologically complex forms maintain phonological similarity to some aspect of their free bases (Kiparsky 1982; Kenstowicz 1996). A bound stem /-X-/ never appears unaffixed, so there is no surface base *[X] to influence the phonology of morphologically complex /X+Y/. This might cause /X+Y/ to show different phonological behavior from an otherwise similar form /Z+Y/ that is subject to identity effects from its free base [Z]. If all stems of one category are free and all stems of another are bound, apparent category-based phonological differences might be better analyzed as a difference in base-identity effects.

Shiraishi (2004) develops this approach for noun/verb differences in Nivkh (isolate), where only nouns have a free base.

The discussion in §102.3 emphasizes category-specific phonological patterns that do not parallel a distinction between free and bound forms. The relationship between each category-specific pattern and a distinction between free and bound forms is noted for individual case studies and summarized in Tables 1 and 2 (§102.3.5).

102.2.2.2 Inflectional morphology

Inflectional morphology is another morphosyntactic property that varies by category; in fact, a stem's inflectional paradigm is often diagnostic of its category. As with the free/bound distinction, actual category-specific phonological effects must be distinguished from phonological differences that are caused by differences in inflection.

One potential phonological effect of inflectional morphology comes from the ability of specific morphemes to trigger exceptional phonological behavior (Anttila 2002; Pater 2009; see Unique ID wbctp0106 [Exceptionality]). A language in which, for example, all verb inflectional morphemes assign stress to the stem, or trigger the deletion of a preceding vowel, but inflectional morphemes from other categories do not impose these patterns, could have different phonological characteristics for verbs than for other categories. Formalizing these patterns in terms of exceptional behavior by each individual verbal inflectional morpheme would allow the phonology to avoid referring directly to categories.

On the other hand, if all inflectional morphemes associated with a certain category share some property, such as determining the stress of the inflected form, then the morpheme-by-morpheme approach fails to capture this generalization (see the related discussion in §102.6.2). Moreover, inflectional affixes that impose patterns on stems do not have to prevent stems from bearing contrasts of their own; Lionnet, McPherson, and Rolle (2022) note that inflection-determined tone sometimes combines with, rather than replacing, stem tone. For these reasons, a morpheme-by-morpheme exceptional phonology approach cannot fully account for differences in phonological behavior between categories.

Inflection can also influence phonological patterns through *paradigm-uniformity effects,* where stems resist phonological alternations within their inflectional paradigms (Kenstowicz 1996; see Unique ID wbctp0083 [Paradigms]). If different categories have distinct sets of inflectional affixes that happen to create different kinds of phonological environments, and

paradigm-uniformity effects prevent stems from alternating, this could lead to stems of one category consistently showing different phonological properties from stems of another category. McCarthy (2005) applies Optimal Paradigms, an implementation of paradigm uniformity, to account for different prosodic-shape inventories for nouns and verbs in Classical Arabic (Semitic), and Cable (2005) emphasizes that this approach avoids direct reference to categories in the phonology.

Not all cases of phonological differences between categories can be reduced to paradigm-uniformity effects, as argued by Bobaljik (2008) for Itelmen (Chukotko-Kamchatkan) and Marco (2024) for Judeo-Tripolitanian Arabic (Semitic). Bobaljik (2008) further argues that the Optimal Paradigms approach does not fully account for Classical Arabic. Still, because of potential confounds from paradigm-uniformity effects, phonological subgroupings among categories that do not parallel inflectional subgroupings provide stronger evidence for category-specific phonology.

In assessing the independence of category-specific phonology from inflection, adjectives are particularly informative. Phonologically, adjectives can pattern with nouns, with verbs, or differently from both. Morphologically, adjectives vary in the grammatical features expressed in their inflection—nominal features such as number, gender, or case; verbal features such as tense or aspect; adjective-specific features such as comparative or intensification; or no inflection at all. The case studies in §102.3 each note whether adjectives' phonological patterning correlates with their inflectional feature type, and the results are summarized in Tables 1 and 2 (§102.3.5).

102.2.3 Identifying phonological privilege among categories

Many cases of category-specific phonology involve a difference in *phonological privilege* between categories. Generally speaking, phonological privilege is the ability to support a greater array of phonological contrasts, such as by having a larger number of underlying distinctions or a greater resistance to phonological processes (Beckman 1999; Zoll 2004; see Unique ID wbctp0080 [Mergers and Neutralization]). Positional augmentation, in which a privileged domain is required to have some perceptually salient property (see §102.3.3.2 on minimality requirements), is technically a type of neutralization because all instances of domain *D* are required to have property *X*, but it is also a diagnostic for phonological strength (Smith 2005).

Accordingly, the case studies in §102.3 are considered to demonstrate a hierarchy of privilege among categories if one category has more lexical contrasts than another, resists a

phonological process that applies to another, or undergoes a category-specific process of augmentation. Cases that involve a hierarchy of privilege are summarized in Table 1, and cases that involve distinct behavior for different categories without a difference in privilege are summarized in Table 2 (§102.3.5).

102.3 Case studies: Nouns, adjectives, verbs

This section discusses category-specific effects involving nouns (N), adjectives (A), and verbs (V). Some of the case studies are consistent with a hierarchy of phonological privilege among categories, while others show distinct but predictable patterns for different categories. Cases not easily reducible to differences between free and bound categories are prioritized, and attention is given to whether adjective phonology patterns with adjective inflectional features. Patterns are summarized in §102.3.5.

Because space is limited, small data sets are provided to illustrate representative case studies. The reader is encouraged to refer to the original sources.

102.3.1 Stress and pitch accent

102.3.1.1 Hierarchy of privilege

A category-specific pattern involving stress location is found in **Spanish** (Romance; Harris 1983; Doner 2017), where noun and adjective roots have lexical contrasts but verb roots do not (see Unique ID wbctp0173 [Stress Specification in the Lexicon]). Nouns and adjectives can have stress on the antepenultimate, penultimate, or final syllable. Verbs may appear with penultimate or final stress, but the stress location is determined by the inflectional affix, never by the root.

(1) Spanish stress

N: Lexical contrast		*A: Lexical contrast*		*V: No lexical contrast*	
[sáβana]	‘sheet’	[metóðik-o]	‘methodical-M’	[láβ-o]	‘wash-1SG.PRS.IND’
[saβána]	‘savanna’	[faβoɾít-o]	‘favorite-M’	[laβ-ó]	‘wash-1SG.PRET.IND’

Spanish stress is an example in which nouns and adjectives, which can contrast for stress location, have greater phonological privilege than verbs, which cannot: NA>V. All verbs are bound, while some noun and adjective stems can be free forms, but the examples in demonstrate that even bound nouns and adjectives can have stress contrasts (see (1)). Adjectives pattern

phonologically with nouns and inflect for nominal features such as gender and number, so in this case, the inflectional features parallel the phonological division.

Modern **Hebrew** (Semitic) has differences among all three categories in contrasts for stress location (Becker 2003; Bat El, Cohen, and Silber-Varod 2019). Verbs predictably have "mobile" stress, which is attracted to the right edge of the word whether a form is suffixed or not. Adjectives and nouns have a contrast between mobile stress and "fixed" stress, which remains on a particular syllable of the base even in affixed forms. Furthermore, the location of fixed stress is contrastive for nouns, but predictably root-final for adjectives. As Becker (2003) observes, adjectives have greater phonological freedom than verbs, but not as much as nouns, so the hierarchy of privilege is N>A>V.

(2) Hebrew stress (Becker 2003)

N: Lexical contrast, two degrees

[dikdúk]–[dikduk-ím]	'grammar.SG', '-PL'
[diktátor]–[diktátor-im]	'dictator.SG', '-PL'
[kópirajter]–[kópirajter-im]	'copywriter.SG', '-PL'

A: Lexical contrast, one degree

[ʃakrán]–[ʃakran-ím]	'liar.SG', '-PL'
[malján]–[malján-im]	'rich.sg', '-PL'

V: No lexical contrast

[bizbéz]–[bizbez-ú]	'spend.SG', '-PL'
[ʃamár]–[ʃamr-ú]	'keep.SG', '-PL'

Even nouns and adjectives predictably have mobile stress, like verbs, if they are templatic (bound), like verbs (see §102.3.3.1). However, the free/bound distinction cannot account for the difference between atemplatic (free) nouns, where the location of fixed stress is contrastive, and atemplatic adjectives, where fixed stress is always root-final. The distinct behavior of nouns and adjectives also means that Hebrew category-specific stress cannot be reduced to a difference between nominal and verbal inflectional features, even though adjectives inflect for nominal features such as gender and number.

A category-specific difference in contrasts for pitch-accent location is seen in the Tokyo dialect of **Japanese** (Japonic; McCawley 1968; Kawahara 2015; see Unique ID wbctp0042 [Pitch Accent Systems], Unique ID wbctp0120 [Japanese Pitch Accent]). Nouns, adjectives, and verbs all have a contrast between stems with a pitch accent, realized as a pitch fall, and stems that are unaccented. In accented nouns, the location is also contrastive; accent may appear on any syllable. Accent location in adjectives and verbs is predictable, determined by the inflectional form (see Kawahara (2015) for details). The hierarchy of privilege for accent location is therefore N>AV.

(3) Japanese pitch accent

N: Lexical contrast		*A: No lexical contrast*		*V: No lexical contrast*	
[há.ʃi-ga]	'chopsticks-NOM'	[a.tsɯ́-i]	'hot-NPST'	[ka.ké.ɾɯ]	'hoist-NPST'
[ha.ʃí-ga]	'bridge-NOM'	[á.tsɯ-kɯ]	'hot-ADV'	[ká.ke.te]	'hoist-GERUND'

Phonological patterning parallels morphological factors in Japanese, since only nouns contrast for accent location, and only nouns can be free. Also, adjectives pattern phonologically with verbs, and they inflect for verbal features such as tense and aspect. Still, it is difficult to reduce category-specific accent location in Tokyo Japanese to morphological factors alone, given that adjectives and verbs maintain a contrast between accented and unaccented stems—unlike, for example, the Fukuoka dialect (Hayata 1985), where adjectives and verbs are predictably accented.

Further cases in which nouns have more pitch-accent contrasts than verbs include other Japanese dialects (Haraguchi 1977), Proto-Korean (isolate?; Whitman 1994), Xibe (Tungusic; Kubo 2008), and Ancient Greek (Greek; Devine and Stephens 1994).

102.3.1.2 Distinct patterns

Some languages have category-specific differences for stress location with distinct patterns for different categories, rather than different degrees of phonological privilege.

In **Lenakel** (Oceanic; Lynch 1975, 1978), primary stress is always penultimate, but secondary stress differs by category. In nouns, secondary stresses fall on alternating syllables leftward from the primary stress, not necessarily including the initial syllable. In verbs, the initial syllable always bears secondary stress (unless the second syllable has primary stress), and

additional secondary stresses fall on alternating syllables rightward from the initial syllable, except immediately before the primary stress.

(4) Lenakel secondary stress (Lynch 1978: 19)

N: Leftward from primary stress		*V: Rightward from initial syllable*	
[kà.mɑ.dó.ɑ]	'kind of taro'	[nɨ.mɑ.mà.ɾəl.gɛ́j.gɛj]	'you-PL were liking it'
[nɨ.mʷɓ̀.gə.lá.gəl]	'beach'	[tɨ.nɑ.gà.mɑ.ɾəl.gɛ́j.gɛj]	'you-PL will be liking it'

According to Lynch (1978: 3.1), many nouns are free, but inalienably possessed nouns are bound; verbs are typically affixed, but they appear without an overt affix in the singular imperative. Thus, it is more likely for nouns to be unaffixed than verbs, but the different stress patterns do not directly reduce to a free/bound distinction. J. Lynch (p.c., 2009) notes that the initial syllable of a verb nearly always includes the subject prefix, however, and speculates that this morphological (or discourse) factor may be related to the initial-syllable secondary stress in verbs. As for adjectives, they take verbal inflectional morphology when they are predicates, but not when they modify nouns (Lynch 1975, 1978). The presence or absence of verbal morphology on adjectives likely determines whether they take on the stress pattern of nouns or that of verbs, although many adjectives are too short to show category-specific patterns of secondary stress (J. Lynch, p.c., 2009). This pattern can be summarized as N(A)≠(A)V.

In **English** (Germanic; Chomsky and Halle 1968; Berg 2000), there is a preference (not a requirement) for initial/trochaic stress in disyllabic nouns that is not seen in disyllabic verbs, even though both nouns and verbs are generally free forms. Adjectives pattern similarly to nouns with a preference for initial stress in disyllables (Berg 2000), although adjective inflection in English involves neither noun-like nor verb-like features. (Trisyllabic adjectives are equally divided between initial and second-syllable stress, however, while trisyllabic nouns and verbs both seem to prefer initial stress.) The different preferences for stress in disyllables can be summarized as NA≠V.

102.3.2 Tone

102.3.2.1 Hierarchy of privilege

In **Nandi** (Nilotic; Creider and Creider 1989), nouns (and noun inflectional suffixes) have lexically specified, contrastive tone melodies (see Unique ID wbctp0045 [The Representation of

Tone]), but tone in adjectives and verbs is predictable based on stem shape and inflectional category, giving a N>AV pattern for phonological privilege.

(5) Nandi tone (Creider and Creider 1989, 23, 62, 78)

Tones: /é/ high; /e/ low; /falling/ (allophones): [ê] high falling, [è] low falling

N: Lexical contrast		*A: No lexical contrast*		*V: No lexical contrast*	
[mɔ:j]	'wound'	[áɲîɲ]	'tasty-PRED'	[a-kàs]	'1SG-hear.SBJV.PFV'
[lɔ́:ŋ]	'shield'	[ne áɲıŋ]	'tasty-OBL'	[ı:-kas]	'2SG-hear.SBJV.PFV'
[kà:t]	'neck'	[nè aɲíɲ]	'tasty-NOM'	[kɔ-kás]	'3SG-hear.SBJV.PFV'

Adjectives inflect for nominal features (number and case), but phonologically they pattern with verbs. The category-specific tone patterns also fail to correspond to a free/bound distinction. Some nouns can appear as free forms, but others must appear with a segmental affix, such as one of a set of thematic suffixes. Verbs generally require segmental affixes, although the third-person indicative perfective simple nonpast form is a bare stem. By contrast, examples provided by Creider and Creider (1989: 61-64) suggest that singular predicative adjectives are segmentally bare roots. If any category is the most free, then, it seems to be the adjectives, but this fact predicts neither their patterning with verbs phonologically, nor their restricted phonological behavior compared with nouns.

In **Kɔnni** (Gur/Mabia; Cahill 2007), nouns and adjectives have lexical tone contrasts, but verb tone is predictable from the verb inflectional form (NA>V). This is the case despite the fact that all adjectives and almost all nouns are bound, while a few forms within the verb paradigm can appear with no segmental affix (see §102.3.4.1), so the pattern of phonological privilege is, if anything, the reverse of what the free/bound distinction would predict. Kɔnni also has category-specific effects concerning prosodic shape (§102.3.3.1) and segmental phonology (§102.3.4.1); adjectives, which are morphologically closer to nouns (see §102.3.4.1), actually pattern with verbs for the other two phonological patterns even though they pattern with nouns for tone.

Another language with category-specific tone contrast inventories is **Abawiri** (Lakes Plain; Yoder 2020: §2.4). Nouns can have one of eight tonal melodies, but only six of these are possible for verbs, and only four for adjectives and "minor" word classes (Yoder 2020: §2.4.6). This description indicates a somewhat unusual hierarchy of privilege, N>V>A. While it is the case

that nouns are free forms and verbs are highly inflected, adjectives, which have the most restricted inventory of tonal melodies, are also free forms (Yoder 2020: §3).

Unlike a number of other languages where tone contrast possibilities differ by category, verb tone in Abawiri is not fully determined by inflection, and verbs have lexical tone contrasts. (Here and elsewhere, superscript tone specifications represent floating tones.)

(6) Abawiri verb contrasts (Yoder 2020, 70); default [L] on final syllable(s)

/L/	[dʷ**ò**ɾɔ̀ɾì]	‘rotate!’	/LH/	[w**ò**dʒ**ɛ́**βì]	‘reject!’
/H/	[k**á**dàɾì]	‘clean!’	/ᴸH/ (→[M])	[dɾɛ̄βàɾì]	‘sharpen!’

Additional languages where nouns have more tone contrast possibilities than verbs (N>V) with respect to complexity of underlying tone, H tone location, or resistance to alternations include Proto-Bantu and various modern Bantu languages (Kisseberth and Odden 2003; see Unique ID wbctp0114 [Bantu Tone]), including Digo (Kisseberth 1984) and Shona (Myers 1997), as well as Gã (Kwa Volta-Congo; Paster 2000), Mono (Banda; Olson 2005), and stem contrasts in Dagaare (Gur/Mabia; Anttila and Bodomo 2022).

102.3.2.2 Distinct patterns

In **Lamang** (Chadic; Wolff 2015), noun tones are determined by onset consonants, interacting with phrase-level tonal effects. The basic pattern is that tone is low when the onset is a voiced pulmonic obstruent (depressor consonant), and tone is high when the onset is a sonorant, a voiceless obstruent, or one of [ɓ] or [ɗ]. Verb tones, however, are determined by inflectional category. (Wolff argues that there is no morphosyntactically distinct class of adjectives.)

(7) Lamang tone (Wolff 2015, 86-87, 95)

N: Low if depressor consonant, otherwise high		*V: By inflectional form*	
[ɣʷà]	‘mountain’	[kə̀là-jò]	‘that I take (SBJV-I)’
[ɬá]	‘cow’	[kə̀lá-jó]	‘I take/took (AORIST)’

The free/bound distinction does not straightforwardly predict this difference. Nouns can combine with inflectional and derivational affixes, but some nouns are bare stems when not marked for plural. Verbs have complex, agglutinative paradigms, but simple verb stems in the imperative form appear without segmental affixes.

Lamang is typologically unusual in that, unlike nouns and verbs, function morphemes do have contrastive tones; more often, lexical morphemes have greater phonological privilege than function morphemes (McCarthy and Prince 1995, §6.2; Beckman 1999). Expressives also contrast for tone. Between nouns and verbs, however, there is no obvious difference in phonological privilege: N≠V.

Another language with different tonal patterns for different categories is **Dagaare** (Gur/Mabia; Anttila and Bodomo 2022), where toneless syllables in nouns and adjectives undergo H-tone spreading, but toneless syllables in verbs receive default L tone. Anttila and Bodomo argue explicitly that this pattern does not reduce to a difference in morphological levels such as stem versus word, but is an instance of category-sensitive phonology. Nouns and verbs do not differ appreciably on the free/bound dimension: nouns have obligatory number marking, and verbs have obligatory aspect marking, although the class 5 singular noun form and the perfective transitive and imperative verb forms have no overt segmental affix (Ali, Grimm, and Bodomo 2021). Dictionary entries and examples in Ali, Grimm, and Bodomo (2021) indicate that adjectives inflect for number, a nominal category. Thus, the pattern for Dagaare tone spreading is NA≠V, where the phonological distinction patterns with adjective inflection but not with a free/bound distinction.

Abawiri (Yoder 2020, §2.4.4) has a category-specific process that spreads the final tone of the melody rightward when a word has more syllables than tones. This process applies to all categories except verbs, so it is difficult to classify in terms of phonological privilege. Yoder (2020, §2.4.3.2) observes that being subject to tone spreading allows nouns to maintain lexical contrasts between /H/ versus /HL/ and /LH/ versus /LHL/ melodies, and indeed these contrasts are not found in verbs. In this sense, the category-specific behavior of tone spreading is related to nouns' phonological privilege with respect to tone contrasts (§102.3.2.1). Moreover, since high tone is phonologically prominent (de Lacy 2002), the spreading of a H tone to all toneless syllables in a noun could be considered phonological augmentation, which is another diagnostic of privilege (see §102.2.3) On the other hand, the spreading process targets not just nouns, but all non-verb categories—including adjectives, with their even further restricted inventory of tone melodies. A tentative conclusion is that Abawiri tone spreading is a case of distinct behavior for different categories, NA≠V.

102.3.2.3 Ewe

Tonal phonology in **Ewe** (Kwa Volta-Congo; Ansre 1961; Schadeberg 1985; Duthie 1996) is category-specific in several ways, including a /L^H/ melody that can be lexically specified for nouns but not for verbs (N>V) and a difference in the allotones of lexical /L/ (N≠V). Concerning tone contrasts in syllables with voiced obstruents (depressor consonants; see also Unique ID wbctp0097 [Tonogenesis]), Ansre (1961) describes an unusual hierarchy of privilege, V>N, but later sources describe distinct category-specific patterns, N≠V.

Ewe has two level tones, high (/H/) and nonhigh (/L/). The nonhigh tone is generally realized as low [L] sentence-finally and before [L], but as mid [M] otherwise. In verbs, /L/ surfaces with these expected allotones even when the syllable onset is a voiced obstruent. In nouns with a voiced-obstruent onset, however, /L/ surfaces as [L] where [M] would otherwise be expected. These distinct requirements on the surface realization of /L/ involve no hierarchy of privilege: N≠V.

Voiced-obstruent onsets also interact with /H/ in nouns, although this is where descriptions diverge. Sources agree that monosyllabic verb stems have a lexical contrast between /H/ and /L/, regardless of the onset consonant. According to Ansre (1961), a lexical /H/ specification is not permitted in voiced-obstruent nouns; this description of the contrast between lexical /H/ and /L/ in the voiced-obstruent context is consistent with a hierarchy of privilege V>N.

Schadeberg (1985) does describe a lexical contrast between /H/ and /L/ in voiced-obstruent nouns. The /L/ in such nouns surfaces as [L] and never [M] (consistent with Ansre). The /H/ in voiced-obstruent nouns is realized as rising [LH] in many contexts, often leading to neutralization with /L^H/, but the contrast between /H/ and /L^H/ is preserved in possessive constructions. Thus, according to Schadeberg, voiced-obstruent nouns and verbs both have /H/ but with different surface realizations: N≠V.

(8) Ewe tones with voiced-obstruent onsets

	N: Depressor effects					*V: No depressor effects*		
/L^H/	/dǒ/	[dǒ]	‘hole’	[NP ɸé dǒ]	‘NP’s hole’	(no /L^H/ for verbs)		
/H/	/gbɔ̋/	[gbɔ̌]	‘goat’	[NP ɸé gbɔ̋]	‘NP’s goat’	/dó/	[dó]	‘to plant’
/L/	/dzò/	[dzò]	‘fire’			/dò/	[dō]	‘to appear’
	(Schadeberg 1985, 11, 15)					(Ansre 1961, 36)		

It is unclear why Ansre (1961) and later sources differ in describing voiced-obstruent nouns. Perhaps they are documenting different varieties or stages of Ewe, or perhaps Ansre has overlooked the possessive-construction evidence for /H/ as distinct from /L^H/. Duthie (1996: 23) notes that a rising tone after a voiced obstruent "is very liable to change in context and according to dialect." In any case, the pattern described by Schadeberg (1985; also Duthie 1996) is one in which there is a lexical contrast between /H/ and /L/ in voiced-obstruent stems for both nouns and verbs, but the surface realization of this tone contrast is category-specific (N≠V): [H] versus [M] (or [L] in context) in verbs, but [LH] versus [L] in nouns.

The relationship between category-specific tone patterns and morphological factors in Ewe is also complex. Most adjectival meanings are expressed by stative verbs. Dzablu-Kumah (2015) identifies a small number of underived adjectives but does not describe their tonal phonology. As for a potential free/bound distinction, both nouns and verbs can have segmental inflection, but there is controversy over whether inflectional morphemes are affixes or clitics. Nurse (n.d.) argues, for verbs, that three tense/aspect markers are affixes, but all other inflectional markers are clitics. The noun inflection that is the most likely to be an affix is the "á form" of the definite article (Dzablu-Kumah 2015: 4), but Nurse (n.d.) silently treats even this as a clitic. In any case, it seems that neither verbs nor nouns are obligatorily bound, and nouns, which show consonant/tone interactions, are not less free than verbs.

In summary, monosyllabic (or V.C(C)V) nouns in Ewe have a lexical contrast among three tone melodies, /H/, /L/, and /L^H/, while monosyllabic verbs only have a contrast between /H/ and /L/, a pattern consistent with the hierarchy N>V. According to Ansre (1961), the /H/ category is unavailable for nouns with voiced-obstruent onsets, which would suggest V>N, but later sources simply describe different phonetic realizations for both /H/ and /L/ in nouns, where depressor consonants cause tones to lower, versus verbs, where lowering does not occur; that is, N≠V.

102.3.3 Prosodic shape

Category-specific effects involving prosodic shape include prosodic templates, prosodic-structure patterns, and word-size effects.

102.3.3.1 Hierarchy of privilege

In **Hebrew** (Semitic; Glinert 1988; Bat El 1994), verbs are subject to a prosodic-shape restriction: they must fit into one of a number of disyllabic templates (see Unique ID wbctp0108 [Semitic

Templates]). Hebrew nouns and adjectives may also be templatic, but they need not be, particularly for loanwords. Since verbs are more restricted than nouns and adjectives, this pattern is NA>V, consistent with the more elaborated N>A>V seen in §102.3.1.1 for Hebrew stress. (Closely related Modern Standard Arabic (Ryding 2005) has a similar pattern.)

(9) Prosodic shape in Hebrew (Bat El 1994: 577-578)

N: Prosodic shape contrasts		*V: Templatic*	
[télegraf]	'telegraph'	[tilgref]	'telegraph'
[ksilofon]	'xylophone'	[ksilfen]	'play the xylophone'
[nostálgia]	'nostalgia'	[nistelg]	'be nostalgic'

Arguably, to be templatic is to be bound, but it is unclear that an appeal to the free/bound distinction in and of itself can account for only nouns and adjectives, but not verbs, being able to escape templatic requirements. The phonological patterning is consistent with adjective inflection, however, since Hebrew adjectives inflect for nominal features.

A different kind of prosodic-shape effect is seen in **Mbabaram** (Paman; Dixon 1991). Long vowels are relatively rare, but they are found only in nouns and adjectives, never in verbs: NA>V. This category-specific difference in vowel-length contrasts is classified as prosodic rather than segmental following proposals to represent length as association with two prosodic timing units (Clements and Keyser 1983; see Unique ID wbctp0020 [The Representation of Vowel Length]).

(10) Mbabaram long vowels (Dixon 1991, 357)

N		*A*		*V*
[nɔ́ːmbɨ]	'big red wallaroo'	[ɲɔ́ːlmbu]	'small'	—
[nambúːɽ]	'big brown snake'	[muɽáːl]	'cold'	
[guːɽ]	'nulla nulla'			
cf. [guɽ]	'elbow'			

Adjectives in Mbabaram inflect for case, a nominal feature (Dixon 1991, 367), so this pattern is consistent with inflection type. It is also consistent with the free/bound distinction: nouns and adjectives appear without an affix in the absolutive case, but no verb inflectional form is described as unaffixed. However, since the presence versus absence of a vowel-length contrast

is less directly related to the free/bound distinction than something like a minimality requirement would be (see §102.2.2.1), Mbabaram is included here as an example of category-specific phonology.

A category-specific restriction on word size is found in **Kɔnni** (Cahill 2007: 89-90). About half of the nouns in Cahill's database are trisyllabic or longer, including some analyzed as monomorphemic that are as long as five or six syllables. None of the verbs have stems longer than three syllables, however, and only 41 out of 461 are larger than disyllabic. As for adjectives, these are a small closed class; the examples in Cahill (2007, Appendix D) include only ten distinct stems, but of these, five are monosyllables, four are disyllables, and only one is trisyllabic. Thus, while the data from adjectives is admittedly limited, it seems that verbs and adjectives have a maximum of three syllables with a preference for one or two, while nouns are freely trisyllabic and can be even longer. This pattern indicates a hierarchy of privilege N>AV. Category-specific tone contrast possibilities in Kɔnni (§102.3.2.1) pattern as NA>V, so these two hierarchies combine as N>A>V. (See §102.3.4.1 for a segmental pattern also showing N>AV in Kɔnni.)

102.3.3.2 Minimality requirements

Word-minimality effects have been analyzed in terms of a requirement that a morphological word be coextensive with a prosodic word, which is minimally bimoraic or disyllabic (McCarthy and Prince 1999; see also wbctp0170). Because content morphemes are often subject to minimality requirements where function morphemes are not, minimality effects can be classified as a type of positional augmentation (see §102.2.3). Thus, category-specific minimality effects are evidence of phonological privilege for the category subject to the requirement. As noted in §102.2.2.1, however, surface-oriented minimality requirements are often irrelevant for bound forms, so it is important to distinguish category-specific minimality requirements from straightforward cases of a morphological free/bound distinction.

In **Chuukese** (Micronesian; Goodenough and Sugita 1980; Muller 1999), a bimoraic minimality requirement applies to nouns but not verbs. There is a general requirement, affecting both nouns and verbs, that the expected word-final mora not surface, so underlying final vowels are deleted if short and shortened if long. Crucially, when this truncation process would have derived a monomoraic surface form, nouns undergo vowel lengthening. This results in a surface

contrast between CVC and CVːC for verbs, but not for nouns, because potential *CVC nouns surface as CVːC.

(11) Word minimality in Chuukese

N: Minimally bimoraic				*V: No minimum*	
/fasa/	[faːs]	*[fas]	‘nest’	[fan]	‘go aground’
/fæne/	[fæːn]	*[fæn]	‘building’	[faːn]	‘break open’
(Muller 1999, 395)				(Goodenough and Sugita 1980, xiv)	

Goodenough and Sugita (1980) say of adjectives that some are free and others are suffixes. They do not explicitly describe word size for free adjectives, but entries in their dictionary for free forms tagged “adj.” are also tagged “vi.” for “inactive verb”, suggesting no robust distinction between (free) adjectives and verbs. This indicates that the minimality requirement is noun-specific, N>(A)V. Crucially, this category-specific phonological effect cannot be reduced to a free/bound distinction. Both nouns and verbs may appear unaffixed (and both undergo the final-mora truncation process), and yet only nouns are subject to the minimality requirement.

Gradient effects demonstrating prosodic-shape requirements for nouns versus adjectives and verbs are found in **Cantonese** (Sinitic). Luke and Lau (2008) present evidence from loanword truncation patterns in a corpus, a forced-choice loanword nativization experiment, and a comparison of monosyllabic and disyllabic forms in a list of basic (non-loan) vocabulary, all showing that verbs and adjectives tend to be monosyllabic while nouns tend to be disyllabic. The disyllabicity preference in nouns is plausibly a word-minimality effect, meaning that Cantonese has a gradient preference for augmentation in nouns along with other (non-augmentation) gradient preferences for monosyllabic verbs and adjectives, consistent with a hierarchy of privilege N>AV. Morphosyntactically, adjectives do pattern like verbs—serving as predicates with no overt copula, and occurring with aspect markers, for example (Matthews and Yip 2011). Nevertheless, nouns, verbs, and adjectives can all be free forms, so the association between disyllabicity and nouns is not simply driven by a category-specific difference in free/bound status.

Other languages in which nouns, but not verbs, have minimality requirements include Chukchee and Koryak (Chukotko-Kamchatkan; Krause 1979).

102.3.3.3 Cases to exclude

A few languages with apparent noun/verb phonological differences involving prosodic shape do not clearly meet the criteria of category-specific phonology laid out in this chapter, because a morphological account of the category differences is difficult to rule out.

Hyman (2011) reports noun/verb differences in Gokana (Ogoni) concerning the Prosodic Stem (PrStem), a morphological constituent consisting of a root and optionally one derivational and/or one inflectional suffix. The PrStem may be at most two syllables. The second syllable of the PrStem is unrestricted for verbs, but it must begin with a consonant and must be monomoraic for nouns. Hyman (2014) demonstrates, however, that the PrStem disyllabic maximum might be an accidental outcome of the inventory of existing morphemes. This later paper does not address the noun/verb difference, but if the morpheme inventory is such that PrStems of certain shapes could only be assembled for verbs and not for nouns, then the noun/verb difference would have a morphological account.

In Itelmen (Bobaljik 1998, 2008), certain consonants must be adjacent to a vowel; otherwise, a schwa is epenthesized. Nouns show schwa-zero alternations, since the environment for epenthesis is met in some morphological forms but not in others. In verbs, schwa epenthesis applies to *all* morphological forms as long as its environment is met in *some* form. Bobaljik's (1998) analysis of the pattern has epenthesis apply cyclically in verbs but noncyclically in nouns, allowing only verbs to undergo epenthesis in cases where subsequent affixation could bleed that process. It is unclear whether this example qualifies as category-specific phonology by the criteria applied here, or whether Bobaljik's analysis should be considered morphological, since what differs by category is the interface between morphological structure and phonological epenthesis.

102.3.4 Segmental phonology

The cases of category-specific phonology reviewed so far involve prosodic properties—stress and pitch accent, tone, or prosodic shape. While prosodic properties seem to be a more frequent point of difference, segmental phonology can differ by category as well.

102.3.4.1 Hierarchy of privilege

Kɔnni (Gur/Mabia; Cahill 2007; Jesney 2016) has category-specific restrictions on the distribution of vowel quality. There are nine contrastive vowel qualities (plus a length contrast) and ATR harmony. Verb stems can be one, two, or occasionally three syllables long (see

§102.3.3.1), and while any vowel quality may appear in the initial syllable, only [i] or [ɪ] is possible elsewhere (except that trisyllables have medial [u/ʊ] after initial [u/ʊ]+[g]). Nouns, on the other hand, freely allow non-high vowels in non-initial syllables. Cahill (2007) does not explicitly address adjective vowel patterns, but the five adjectives with more than one syllable listed in his Appendix D have only [i] or [ɪ] after the first syllable, suggesting that adjectives are subject to the same restriction as verbs. Since nouns have more possibilities for contrast, this pattern is N>AV, as for Kɔnni prosodic shape (see §102.3.3.1; compare NA>V for Kɔnni tone contrasts in §102.3.2.1).

(12) Kɔnni vowels (Cahill 2007, 90, 442, 463)

N: Lexical contrast		*A: No lexical contrast*		*V: No lexical contrast*	
[síŋg**ɛ́**tígí-ŋ]	'lizard (species)'	[-góbí-ŋ]	'short'	[kpegiri]	'snap'
[sìkp**ɔ́ɔ́**-ŋ]	'heart'	[-hɔ́ɔˈlí-ŋ]	'new'	[garɪsɪ]	'pass'

Adjectives in Kɔnni pattern morphologically very closely with nouns: they are bound suffixes that combine with nouns, and a noun+adjective combination bears further suffixes for the nominal categories of number and definiteness, as seen with /-ŋ/ 'SG.INDF' in (12). Thus, inflection type does not predict phonological patterning, since adjectives pattern with nouns only for tone, forming a class with verbs for prosodic shape and vowel quality.

Category-specific phonology in Kɔnni likewise does not reflect a straightforward distinction between free and bound stems. As noted above, adjective stems are few in number and always bound. Most noun stems are also bound, since nouns require suffixes marking number and definiteness; a minor exception is nouns of class 5 (and some loanwords), which have a zero suffix for the singular indefinite. On the other hand, what Cahill (2007) calls "neutral" forms of verbs (including imperatives and other aspectually unmarked forms) appear with no segmental affix. Thus, verbs, which are the most restricted for all three of the category-specific patterns in Kɔnni, are if anything the most free, while adjectives, which are privileged compared to verbs for lexical tone (§102.3.2.1), are the most bound.

In **Urama** (Kiwai; Brown et al. 2016), noun and adjective roots may begin with either vowels or consonants, but verb roots are required to begin with a vowel: NA>V. (Morphologically complex verb forms may begin with consonants, but root-initial verb forms also occur on the surface.) Moreover, this requirement is enforced in derived verbs and borrowed

verbs by strategies such as initial-consonant deletion or copy-vowel epenthesis, although the epenthesis process is described as "not fully productive" (Brown et al. 2016, 42).

Adjectives in Urama are inflectionally distinct from both nouns and verbs. Adjective inflection seems to be limited to intensification, involving neither nominal features like person or number nor verbal features like tense or aspect. Many nouns and adjectives are free, while verbal morphology is complex, with affixes and clitics marking features such as agreement, tense, and aspect, but verb imperatives are "often bare" (Brown et al. 2016, 59), so all three categories can function as free forms to some extent. Thus, the hierarchy of phonological privilege NA>V does not directly parallel either inflectional feature types or the free/bound distinction.

102.3.4.2 Distinct patterns

Anttila (2002) discusses a gradient category-specific effect in **Finnish** (Finnic) involving the choice between two phonological alternations. Under certain morphological and phonological conditions, a stem-final /a/ either deletes, or surfaces as [o] (mutates), when the plural /-i-/ is added. Anttila's corpus study shows that, in the absence of phonological factors biased toward one of the strategies (such as a tendency to avoid mutation after labial consonants), mutation is preferred by nouns and deletion by adjectives. This difference arises even though nouns and adjectives are inflected with identical affixes. Moreover, nouns and adjectives are both free stems in Finnish, unaffixed in the nominative singular (Karlsson 1999).

(13) Finnish (Anttila 2002, 13)

N: Prefer mutation			*A: Prefer deletion*		
/kihara-i-ssa/	→	[kiharo-i-ssa]	/kihara-i-ssa/	→	[kiharØ-i-ssa]
		'curl-PL-inessive'			'curly-PL-inessive'

It is difficult to interpret this difference in terms of relative phonological privilege. Mutation, favored by nouns, does preserve all input segments, which might be evidence for noun privilege, but on the other hand this process allows feature values to be changed in nouns, which is avoided in the deletion alternation that adjectives prefer. This pattern is therefore classified as N≠A.

Additional gradient category-specific segmental patterns have been identified in English. In the main-stress syllable, high-frequency nouns are more likely to have a back vowel than a front vowel, but high-frequency verbs are more likely to have a front vowel than a back vowel

(Sereno and Jongman 1990; Berg 2000). Stem-final fricatives are more likely to be voiced in verbs than in nouns (Jespersen 1942; Albright 2008), although the degree to which this is a phonological generalization rather than a generalization about derivational morphology is unclear, given the existence of N/V pairs such as hou[s]e_N, hou[z]e_V. Berg (2000) finds that high-frequency adjectives favor back vowels over front vowels in stressed syllables with a proportion very similar to nouns. He also identifies a small number of morphologically related word sets including adjectives, concluding that adjectives prefer final voiceless fricatives, like nouns, rather than final voiced fricatives, like verbs: sa[f]e_N, sa[f]e_A, sa[v]e_V. Adjectives thus tend to pattern more closely with nouns for these gradient segmental patterns: NA≠V. English nouns, adjectives, and verbs are all free, and adjectives do not inflect for any nominal or verbal inflectional features.

102.3.4.3 Cases to exclude

This section briefly discusses a few cases that do not unambiguously qualify as category-specific segmental effects because alternative analyses are available.

Crowley (1997, 243–244) describes a diachronic change in Northern Paamese (Oceanic) that affected /l/, except in verb stem-initial position. Crowley characterizes this as a sound change sensitive to non-phonetic factors, namely, lexical categories. However, Blevins and Lynch (2009) treat the exceptional outcome in verbs as a case of analogical change, a morphological account that does not require category-specific phonology (compare §102.2.2.2 on paradigm-uniformity effects).

Buckley (1994, §3.2.3) identifies a potential verb-specific segmental process in Kashaya (Pomoan). When the absolutive suffix /-ʔ/ combines with a verb root ending in an oral stop, the outcome of the resulting /...C-ʔ/ sequence is [...ʔ] rather than the expected ejective [$C^ʔ$]. Because final ejectives are preserved in nonverbs, Buckley proposes a verb-specific rule of final Place delinking. However, when stop-final verbs combine with the homophonous assertive clitic /=ʔ/, they do surface with a final ejective [$C^ʔ$]. Thus, the Place delinking in absolutive forms may be a morpheme-specific process.

Postal (1968) describes a diachronic change in Mohawk (Iroquoian) in which word-final stops were lost in nouns (except reduplicating animal names), but not in morphologically related verbs. If this is indeed a phonological process affecting nouns and not verbs, it might be, unusually, a case of verb privilege. However, without more information about this historical

change, it is difficult to judge the relative contributions of phonology and morphosyntax to the development of the pattern.

Bakker (1997) describes Michif as having different segment inventories in nouns and verbs. However, this difference may reflect a stratified lexicon (Ito and Mester 1999) rather than a lexical category effect, as Michif is a mixed language in which nouns and verbs tend to derive from distinct source languages, Canadian French (Romance) and Plains Cree (Algonquian) respectively. Furthermore, Rosen (2007) argues that French/Cree stratification is not synchronically relevant for Michif phonology.

102.3.5 Summary

The category-specific phonological effects discussed in this section are summarized in Table 1, for cases showing a hierarchy of phonological privilege among categories, and Table 2, for cases where distinct categories are subject to distinct requirements without evidence of phonological privilege.

Table 1. Languages with category-specific effects involving a hierarchy of privilege.

Language	*Phenomenon*	*Hierarchy of privilege*	*Matches free/bound?*	*Matches A inflection?*
Spanish	stress	NA > V	no	yes
Hebrew	stress	N > A > V	no	no
Japanese	accent	N > AV	yes	yes
Nandi	tone	N > AV	no	no
Kɔnni	tone	NA > V	no	yes
Abawiri	tone contrasts	N > V > A	no	no
Ewe	tone contrasts	N > V	no	—
Hebrew	prosodic shape	NA > V	no	yes
Mbabaram	prosodic shape	NA > V	yes	yes
Kɔnni	prosodic shape	N > AV	no	no
Chuukese	prosodic shape	N > (A)V	no	yes
Cantonese	prosodic shape	N > AV	no	yes
Urama	segmental	NA > V	no	no
Kɔnni	segmental	N > AV	no	no

Table 2. Languages with category-specific effects involving distinct behavior for different categories.

Language	*Phenomenon*	*Distinction*	*Matches free/bound?*	*Matches A inflection?*
Lenakel	stress	N(A) ≠ (A)V	no	yes
English	stress	NA ≠ V	no	no
Lamang	tone	N ≠ V	no	—
Dagaare	tone	NA ≠ V	no	yes
Abawiri	tone spreading	NA ≠ V	no	no
Ewe	consonant/tone interactions	N ≠ V	no	—
Finnish	segmental	N ≠ A	no	no
English	segmental	NA ≠ V	no	no

In nearly all of these cases, the phonological differences between categories are independent of a distinction between free and bound stems. Likewise, in most cases, whether adjectives pattern phonologically with nouns or with verbs is not predicted by the grammatical features encoded by adjective inflection, indicating that the phonological differences between categories are not patterns idiosyncratically imposed by particular inflectional affixes. Thus, these examples are plausible candidates for true category-specific phonology, where the phonological grammar must refer to lexical-category information in some way.

102.4 Asymmetries in category-specific effects

On the basis of the case studies presented in §102.3, two asymmetries can be observed in category-specific phonological effects: a privilege scale N>A>V, and a skew toward prosodic rather than segmental phenomena. As with all typological patterns in phonology, it is an empirical question whether these asymmetries arise from *cognitive bias,* language-specific or other cognitive factors that make some patterns easier to learn than others; *channel bias,* asymmetries in phonetic precursors that make the phonologization of some patterns more likely than others; or a combination of the two (see Moreton 2008 for a review). Investigating the sources of category-specific phonological patterns and their asymmetries is a promising area for future research (see also §102.5).

102.4.1 Privilege scale N>A>V

The cases that show a hierarchy of privilege among categories (Table 1) are nearly all consistent with a privilege scale of the form N>A>V, the exception being Abawiri tone contrasts (N>V>A). Adjectives' crosslinguistic flexibility to pattern with either nouns or verbs (NA>V or N>AV), even when the choice is not predicted by inflectional features, is consistent with a position on the scale between nouns and verbs (de Lacy 2004). The cases with no clear privilege (Table 2) tend to have adjectives patterning with nouns, again often independent of inflection, and consistent with a position on the scale intermediate between nouns and verbs. Additional support for a general bias toward N>V is provided by English nonce-blend experiments (Moreton et al. 2017), which found a small but statistically significant preference for maximizing segments and stress for nouns, at the expense of verbs, in blend formation, even though there is no direct evidence of privilege for nouns over verbs within the phonology of English.

The Abawiri pattern of V>A for tone contrasts, and the cases where categories have distinct patterns without a hierarchy of privilege, demonstrate that the privilege scale N>A>V is a preference, rather than a requirement, in category-specific phonology. It could be a case of analytic (cognitive) bias, and/or a case of channel bias arising from phonology-external factors (§102.5). Intriguingly, this scale observed in phonology is consistent with category scales that have been proposed in morphosyntax (Ross 1972; Langacker 1987; Croft 1990).

There may even be further subdivisions within this privilege scale. A few category-specific phonological patterns have been identified for proper nouns (PrN) as distinct from common nouns (N); see Tanaka (2023) for a review. Several of the cases that have been identified involve only distinct requirements (PrN≠N), and it is sometimes difficult to rule out morphological explanations for the apparent phonological differences. Nevertheless, a few examples are consistent with greater phonological privilege for proper nouns than for common nouns (PrN>N).

The most systematic case may be **Jordanian Arabic** (Semitic; Jaber and Omari 2018), where personal names show privileged behavior in resisting several phonological processes that apply to common nouns. Names resist an open-syllable syncope (prosodic) process as well as certain segmental processes: a vowel coalescence pattern in which underlying /ai/ is realized as [e:], the realization of underlying /q/ as [g], and the simplification of word-final /a:q/ to /a/. Jaber and Omari (2018) demonstrate that, although the personal names in their examples are borrowed from Classical Arabic, it cannot be their status as a loanword (see Unique ID wbctp0095

[Loanword Phonology]) that gives them phonological privilege, because common nouns originating from the same loanword source forms do undergo these processes.

(14) Jordanian Arabic (Jaber and Omari 2018: 121)

	PrN: No syncope	*N: Syncope*	
/sihaam/	[si.'haam]	['shaam]	'arrows'
/wuruud/	[wu.'ruud]	['wruud]	'flowers'
/rimaaħ/	[ri.'maaħ]	['rmaaħ]	'spears'

A general bias for PrN>N is also supported by the results of English nonce-blend experiments (Moreton et al. 2017). Although there is no direct evidence in English for proper-noun phonological privilege, participants preferred blends that preserved either segments or stress position from proper nouns, including both personal names and place names, at the expense of common nouns.

Smith (2014) hypothesizes that the expanded privilege scale PrN>N>A>V represents a scale of low to high predicativity, from rigid designators (PrN) to prototypical predicates (V). Category-specific phonological effects that subdivide the class of verbs into more- and less-canonical predicates would support this hypothesis. There is evidence possibly indicating greater phonological privilege for intransitive verbs over transitive verbs in Itzaj (Mayan; Hofling 2000), and for unergative intransitive verbs over agentive intransitive verbs in Tokyo Japanese (Japonic; Smith 2014), but more investigation is needed.

102.4.2 Prosodic skew

The second tendency in category-specific effects seen in §102.3 is a skew toward prosodic rather than segmental patterns. As Tables 1 and 2 indicate, most of the case studies collected here involve prosodic properties such as stress, accent, tone, or prosodic shape. A few cases do, however, concern segmental (featural) properties. Moreover, Smith (2016) finds evidence that knowledge of gradient noun/verb segmental differences in fricative voicing and vowel backness is productive for English speakers. Thus, it seems likely that the prosodic skew observed in category-specific phonology is not a grammar-internal preference, but arises from external factors affecting acquisition and diachronic transmission, such as those summarized in §102.5.

102.5 Phonology-external factors

Beyond phonology, lexical categories differ in a number of ways. None of these external factors directly account for the full crosslinguistic array of category-specific phonological effects, especially those that involve categorical (rather than gradient) differences between categories. However, these factors might create phonetic precursors, or contribute to analytic-bias effects, that lead to the development of individual cases of category-specific phonology, or to typological asymmetries such as the privilege scale N>A>V and the prosodic skew.

102.5.1 Morphosyntax

As noted in §102.2.1, words of different categories typically differ in terms of their inflectional and derivational morphology, their syntactic distribution, or both. Morphosyntactic differences can cause categories to appear in different phonological environments at different rates, which might influence the development of category-specific patterns that are truly phonological (see also §102.5.3).

Phonological differences might also arise from differences in morphological complexity. For example, the WALS database (Dryer and Haspelmath 2013) supports the intuition that verbs tend to be more complex than nouns with respect to inflectional morphology. Taking morphologically marked plural and case to represent noun inflection, and morphologically marked tense and aspect to represent verb inflection, there are 920 languages that have been coded for both plural and/or case and tense and/or aspect. Of these, 612 (66.5%) have both noun and verb inflection and 94 (10.2%) have neither. Crucially, there are 174 languages (18.9%) with verb inflection alone, but only 40 languages (4.4%) with noun inflection alone. The proportion of languages with verb inflection is significantly greater than the proportion of languages with noun inflection (McNemar's test, one-tailed, $p<0.001$).

This difference might, over time, encourage the loss of lexical phonological contrasts in verbs that are maintained in nouns, contributing to greater phonological privilege for nouns than for verbs. Increased morphological complexity in verbs might make it more taxing to acquire phonological contrasts, for example, or a higher likelihood of competing phonological specifications from stems and affixes in verbs might make it more likely for stem contrasts to be lost or neutralized, although stem contrast loss under these conditions is not inevitable (Lionnet, McPherson, and Rolle 2022).

102.5.2 Information structure and predictability

Different categories function differently in discourse and information structure, and this can influence their phonetics or processing in ways that might contribute to the development of category-specific phonology.

Wang and Xu (2017), in Mandarin, and Lohmann (2020), in English, find greater duration for nouns than for their verb homophones. Both studies show that these duration differences are not directly caused by category, but rather by frequency or informativeness; nouns happen to be more likely, overall, to provide new information than verbs. Nevertheless, greater phonetic duration can help protect phonological contrasts from articulatory or perceptual neutralization (Barnes 2008), so frequency or informativeness factors encouraging longer duration for nouns might contribute to the phonologization of phonetic patterns in which contrasts are preserved more robustly in nouns.

Piciucco et al. (2022) find in an EEG study on Italian that processing difficulties arise for sentences in which the Topic is a verb rather than a noun and for sentences in which the Focus (in the information-structure sense, that is, the "comment") is a noun rather than a verb, even though all of these types of sentences are relatively frequent in Italian. These results provide evidence that nouns and verbs typically play different roles in information structure, which may be related to the relationship between prototypical predicativity and the hierarchy of phonological privilege N>A>V.

102.5.3 Sentence prosody

Sentence prosody (Cole 2015), including intonation, phonological phrasing, and manipulation of duration, is affected by both syntactic structure and information structure. Consequently, words of different categories are likely to differ in sentence prosody.

Kelly (1988) argues that the different phonological stress preferences for disyllabic nouns and verbs in English (§102.3.1.2) originate in their syntactic and prosodic contexts. Nouns prefer initial stress because they are typically preceded by unstressed determiners, and alternation between stressed and unstressed syllables is desirable. Verbs occur in a distinct syntactic and prosodic context, so they prefer final stress.

Anttila et al. (2020) find that nouns and adjectives in a corpus of formal English speech are more likely to bear sentence stress for syntactic reasons, while verbs are more likely to do so for information-structure reasons. The authors further derive a scale of perceived degree of stress,

N>A>V(>function words). They propose that these differences in sentence stress, deriving from differences in syntax and information structure, are responsible for category-specific phonological effects in general, since stress in English increases duration, inhibiting phonetic reduction and therefore phonological neutralization (see §102.5.2). It seems plausible that sentence-stress differences by category (especially if confirmed beyond English) might contribute to the privilege scale in category-specific phonology. However, this cannot be the only factor responsible for category-specific patterns in phonological grammars. First, not all languages have phonetic duration differences determined by sentence stress. Second, longer duration has been argued to inhibit phonological neutralization for segmental as well as prosodic properties (Barnes 2008), so this sentence-stress-based approach to category-specific phonology cannot account for the prosodic skew.

102.5.4 Acquisition and processing

In a number of typologically distinct languages, nouns are acquired earlier and more easily than verbs (Waxman et al. 2013; Setoh et al. 2021). Psycholinguistic and neurolinguistic studies provide evidence that nouns and verbs may be stored and/or processed differently, although in such studies, category is sometimes confounded with factors such as semantics, concreteness, or imageability; see Vigliocco et al. (2011) and de Aguiar and Rofes (2022) for review. The factors discussed in §102.5.1–3 might also lead to differences in children's processing or lexical acquisition of items of different categories.

Differences in how categories are acquired or processed could potentially interact with the acquisition of a phonological system, which might result in a synchronic grammar with category-specific phonological effects. Additionally, the prosodic skew might be related to differences in the acquisition of segmental and prosodic patterns; see Rose (2002) on the role of prosodic structure in the acquisition of segmental phonology, and Gouskova (2025) on how learners' statistical generalizations may capture prosodic properties more easily than segmental or featural properties.

102.5.5 Phonology-external factors in perspective

The extent to which phonology-external factors can explain the development of category-specific phonological effects in particular languages, or account for their typological asymmetries, is a promising area for future research, with implications for our understanding of the influence of non-phonological factors on typology and diachronic change.

It is important to acknowledge, however, that any language in which the phonological grammar enforces different patterns for items of different categories, by virtue of their membership in the category and regardless of the phonetic, morphosyntactic, prosodic, or other attributes of their use in a particular utterance, cannot be accounted for in terms of phonology-external factors alone.

102.6 Implications for linguistic theory

Category-specific phonological effects also have broader implications for linguistic theory. Two representative topics are considered here: phonological nonuniformity and the morphosyntax/phonology interface.

102.6.1 Phonological nonuniformity

Category-specific effects are an instance of the broader phenomenon of *phonological nonuniformity*, where subdomains of a language have distinct phonological patterns. Other examples of nonuniformity include positional neutralization (Beckman 1999; Zoll 2004), where strong positions such as onsets or stressed syllables maintain contrasts that are neutralized elsewhere, and lexical stratification (Ito and Mester 1999), where phonology differs between lexical subsets such as native and borrowed words.

Several formal approaches to nonuniformity have been developed in the constraint-based phonological frameworks Optimality Theory and Harmonic Grammar (see Unique ID wbctp0063 [Markedness and Faithfulness Constraints], Unique ID wbctp0159 [Harmonic Grammar in Phonology]). One general approach allows constraints to refer directly to the relevant subdomains, using *indexed constraints* (Pater 2000), such as a stress-faithfulness constraint specific to nouns (Smith 2001), or *licensing constraints* (Zoll 2004), such as a markedness constraint penalizing non-high vowels outside of nouns (Jesney 2016). Another general approach implements *cophonologies* (Inkelas, Orgun, and Zoll 2004), where different constraint hierarchies are enforced for subsets of the lexicon, such as different categories (Anttila 2002; Sande, Jenks, and Inkelas 2020). The gatekeeper-grammar approach of Becker and Gouskova (2016), where one grammar assigns lexical items to sublexica and a specific grammar for each sublexicon determines surface forms, could also be potentially implemented for phonological nonuniformity across lexical categories.

It is still an open question as to which approach to nonuniformity is best, and category-specific phonological effects can provide relevant evidence. For example, cases with a hierarchy

of privilege can be modeled with indexed versions of either faithfulness constraints (Beckman 1999) or markedness constraints (Zoll 2004; Jesney 2016), but cases with distinct requirements for different categories are most compatible with indexed markedness constraints. The privilege scale (N>A>V) can interface with the grammar as a ranking metaconstraint under an indexed-constraint approach, but does not have as clear an implementation in a cogrammars approach.

102.6.2 The morphosyntax/phonology interface

Category-specific phonological effects have potential implications for theories of the morphosyntax/phonology interface. For example, Distributed Morphology (Embick 2021) and the Exoskeletal Model (Borer 2014) propose that roots have no inherent category; categories are instead determined by the morphosyntactic structures with which roots combine. In these frameworks, category-sensitive phonology provides evidence concerning the size and stage of morphosyntactic structures whose information becomes available to the phonology.

Sande, Jenks, and Inkelas (2020) build on Distributed Morphology in proposing Cophonologies by Phase (see also Unique ID wbctp0150 [Phases and Phonology]), a cophonologies approach to nonuniformity in which distinct constraint hierarchies are invoked, not by category labels on lexical items, but by morphemes that are category-determining functional heads in the morphosyntactic structure. This proposal removes the need for phonological constraints to refer to category information directly, but raises the question of how to ensure that all of the category-determining heads associated with, say, verbs introduce the *same* ranking modification that is needed to account for a category-specific phonological pattern affecting *all* verbs, without making reference to the category ‘verb’.

As a final example, further investigation of the origins and influence of the privilege scale N>A>V observed in category-specific phonology (see also §102.4.1) may also have implications for the morphosyntax/phonology interface, or, more generally, for the typology of lexical categories in the languages of the world.

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