

SLAVIC MEETS SEMITIC: NOMINAL FUNCTIONAL CATEGORIES AS UNDERSPECIFIED HEADS*

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1. Cross-linguistically parallel homophony?

The Slavic morpheme **K**¹ is systematically *homophonous* with a variety of functional morphemes. First, it productively forms diminutives² that can yield a small degree interpretation, or obtain additional pragmatic readings. The same morpheme can also function as a nominalizer, deriving nominals from other categories, and nominals from nominals. Moreover, **K** can derive a conceptually³ female-denoting morpheme. Finally, the morpheme **K** also appears in formations utilizing a semantic division and number domain (pluralia tantum, group formation). That is to say, the same morphological form expresses derivational and inflectional morphology, nominality as a categorical distinction, and nominal features (possibly, functional heads composed of these features) throughout the extended nominal domain (GENDER, NUMBER, DEGREE, perhaps PERSON).

Strikingly, a very similar range of nominal functions and interpretations is found in

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¹**K** can be inflected for gender, number and case; e.g., Czech *-ek.M.SG, -ka.F.SG, -ko.N.SG* etc. We use the label **K** as a cover term for all uninflected and inflected instances of the morpheme.

²Slavic languages display a range of morphologically distinct and lexically specified derivational morphemes expressing a diminutive-like meaning (see, for example, Wiltschko and Steriopolo 2007; Steriopolo 2008, 2013; Khrizman 2019). Here, we are only concerned with the default and fully productive form based on **K** as the only morpheme exhibiting the functional variability in the centre of our research question.

³We use the term ‘conceptual gender’ to refer to what the older literature calls ‘natural,’ ‘biological’ or ‘sex-based’ gender. See, e.g., Ackerman 2019 for an argument why the terminological choice better reflects the intended denotation. Note, however, that Fassi Fehri (2017, 2018) and elsewhere uses the term conceptual gender to refer to lexical semantics.

Semitic, specifically in Arabic⁴ dialects.⁵ So called feminine morpheme (henceforth, **F**) displays a similar range of functional and semantic interpretations as the Slavic **K**, e.g., in Moroccan and Levantine Arabic (LA).⁶ **F** has a wider range of uses in the number domain. In addition to group formation, **F** also individuates. But **F** is more restricted as a nominalizer. It only derives abstract nouns from adjectives or count nouns.⁷ We ask: How does the observed functional and interpretational variability within the nominal domain map to PF uniformity?

Homophony over a number of functional interpretations within a single language, or even a single family of languages, is not surprising in and of itself, but *parallel systematic* homophony over the same set of functional interpretations, and structural restrictions on their syntactic behaviour and distributional and functional gaps *across language families* requires a structural explanation. In this paper, we argue against accidental homophony. Instead, we propose that both **K** and **F** are morphological realizations of a feature bundle corresponding to a syncategorematic operator (i^* ⁸), which operates on features of the projection it modifies/attaches to and treats those features as variables (in the sense of Borer 2005 and Acquaviva 2019) where the range of i^* 's functional properties is a *function of its syntactic position*. We argue that different functions and interpretations arise from different attachment sites of i^* in the extended nominal domain, instead of a series of semantically specified functional heads (e.g., Fassi Fehri 2017, 2018), or distinct morphemes (e.g., Borer and Ouwayda 2010), modulo structural economy. Consequently, the underlying syntactic underspecification triggers uniform PF realization despite varied syntactic and semantic behaviour, modulo independent differences of the surrounding nominal structures and their morphological realization.

2. Facets of functional **K** and **F**

2.1 Conceptual gender

K and **F** systematically derive female-denoting nouns from MASC nouns, (1).

⁴The description of the Arabic data is largely based on Fassi Fehri (2017, 2018), who we credit for noticing the pervasive nature of gender, and for providing the most empirically exhaustive and linguistically insightful description of the facts.

⁵The same pattern is attested in other Afro-Asiatic languages, including languages of the Omotic and the Cushitic language family (ongoing fieldwork). The pattern is partially attested in Hebrew but with some important differences we cannot discuss here for reasons of space.

⁶The Levantine Arabic data reported here are from its North Galilee variety and were collected by Aya Zarka.

⁷We hypothesize that the restriction is a side effect of templatic morphology. For example, in Moroccan Berber, a closely related language family but with non-templatic morphology, **F** exhibits a significantly wider range of nominalizations (ongoing fieldwork).

⁸The i^* notation is loosely based on the i^* heads Wood and Marantz (2017) according to whom i^* 's functional interpretation is assigned at the interface based on their syntactic configuration. In the present proposal, the functional interpretation is established within narrow syntax, and i^* comes with lexical content (polarity head).

- (1) a. ředitel ‘director.M.SG’ → ředitel-**ka** ‘director-**K**.F.SG, a female director’ CZECH
 b. dyrektor ‘director.M.SG’ → dyrektor-**ka** ‘director-**K**.F.SG, a female director’
 POLISH
 c. kot ‘cat.M.SG’ → kot-**ka** ‘cat-**F**:F.SG, she cat’ POLISH
 d. far ‘mouse.M.SG’ → far-**a** ‘mouse-**F**:F.SG, she mouse’ LA
 e. doktor ‘doctor.M.SG’ → doktor-**a** ‘doctor-**F**:F.SG., a female doctor’ LA

Crucially, only derivations from MASC to FEM are attested.⁹ Moreover, even though Czech and Polish also have neuter, there are no derivations of female-denoting nouns from NEUTER nouns either.

2.2 Category change

Slavic **K** systematically *nominalizes* adjectives, verbs, and prepositions. As the examples in (2-a)–(4) demonstrate, **K**-based category change productively generates MASC and FEM nouns, never NEUTER.

- (2) *K*-based deadjectival nominals:
 a. sodová (voda) ‘soda.ADJ (water)’ → sodov-**ka** ‘soda-**K**.F.SG, pop’ CZECH
 b. mielon-y/-a ‘minced.ADJ-.masc/fem’ → mielon-**ka** ‘luncheon_meat-**K**.F.SG’
 POLISH
- (3) *K*-based deverbal nominals:
 a. doplnit ‘to complement’ → dopln-**ěk** ‘complement-**K**.M.SG, a complement’
 CZECH
 b. podpalić ‘to ignite’ → podpał-**ka** ‘accelerant-**K**.F.SG’ POLISH
- (4) *K*-based deprepositional nominals:
 před (domem) ‘in front of (a/the house)’ → před-**ek** ‘front-**K**.M.SG, (the) front (of something)’
 CZECH

In Arabic, most likely because of templatic morphology, nominalizing **F** is restricted to forming abstract nouns from adjectives and from count nouns (Fassi Fehri 2017, 2018).

2.3 Noun to noun conversion

K-based N-to-N conversion systematically derives MASC nouns from FEM nouns, and vice versa.¹⁰ Strikingly, there are no derivations from NEUTER, or forming NEUTER, despite N-

⁹See, e.g., Pesetsky 2013 for a generalization about the markedness profile of conceptual-gender derivations.

¹⁰Czech data are based on Petr et al. (1986). There is also a handful of nouns that appear to preserve gender, i.e., MASC to MASC, FEM to FEM, and NEUTER to NEUTER. We leave this unproductive formation aside because we hypothesize that it is based on the diminutive formation, utilizing a lexical semantics shift in the lexicon.

to-N conversion by **K** being highly productive. Moreover, when pragmatically plausible, the derivation of grammatically FEM nouns from a MASC base tends to be ambiguous with conceptual gender formation.

- (5) FEM → MASC:
- a. kûra ‘tree-bark.F.SG’ → kor-ek ‘bark-**K**.M.SG, cork (a bottle stopper/substance)’
CZ
 - b. kora ‘tree-bark.F.SG’ → kor-ek ‘bark-**K**.M.SG’ cork (a bottle stopper or the substance)’
POLISH
- (6) MASC → FEM:
- a. diplomat.M.SG → diplomat-ka ‘diplomat-**K**.F.SG; a briefcase, a female diplomat’
CZ
 - b. dyplommat.M.SG → dyplommat-ka ‘diplomat-**K**.F.SG; a briefcase, a female diplomat’
POLISH
 - c. stolarz.M.SG ‘a carpenter’ → stolar-ka ‘carpenter-**K**.F.SG; carpentry (not a female carpenter)’
POLISH

Semitic N-to-N conversions are difficult to characterize because of templatic morphology. Fassi Fehri (2017, 2018) discusses cases of formations of abstract nouns from other nouns.

- (7) a. suhuul-at-un kabiir-at-un
easy-**F**.SG-NOM big-**F**.SG-NOM
‘A great easiness’
- b. ʕuruub-at ‘arabity’; zunuuʔ-at ‘negritude’; muzuuʔ-at ‘berberity’; fuʕuul-at ‘virility’; nuʕuum-at ‘softness’; buʔuul-at ‘championship’; xuʕuun-at ‘roughness’; nubuuʔ-at ‘prophecy’
- (Fassi Fehri 2018, p. 6, (15a)–(15b))

We put these cases aside because in addition to F, the derivation also uses a distinct template employed for unit formations in other contexts (such as instruments derived from mass nouns). While this templatic formation is of interest to the question of individuation, it falls outside of the empirical pattern discussed here.

2.4 Diminutives, their doubles & friends

Diminutive formation by **K** is highly productive for all grammatical genders. Moreover, **K**-based formation always preserves the gender value of the base noun, as in (8)–(10).¹¹

- (8) NEUTER → NEUTER:
- a. jablko ‘apple.N.SG’ → jablíč-ko ‘apple-**K**.N.SG; a small apple’ CZ
 - b. pudło ‘box.N.SG’ → pudeł-ko ‘box-**K**.N.SG; a small box’ POLISH
- (9) FEM → FEM:
- a. jáma ‘pit.F.SG’ → jam-ka ‘pit-**K**.F.SG; a small hole’ CZ
 - b. dziura ‘hole.F.SG’ → dziur-ka ‘hole-**K**.F.SG; a small hole’ POLISH
- (10) MASC → MASC:
- a. słup ‘pole.M.SG’ → słup-ek ‘pole-**K**.M.SG; a small pole’ POLISH
 - b. stół ‘table.M.SG’ → stol-ek ‘table-**K**.M.SG; a small table’ CZ

In Arabic, the primary diminutive derivation yields a stem-internal alternation (a template designated for diminutive formations). This diminutive derivation applies to all genders, and as in Slavic, it does not change the gender of the base, as in (11)–(12).

- (11) FEM → FEM:
- a. daʔera ‘circle.F.SG → dowerra ‘a small circle.F.SG’ LA
 - b. bent ‘girl.F.SG → bannotta ‘a little girl.F.SG’ LA
- (12) MASC → MASC:
- a. arnab ‘rabbit.M.SG’ → arnub ‘a small rabbit.M.SG’ LA
 - b. mHammad.M.SG (proper name) → Hammod.M.SG (a familiar ‘diminutive’ form of the proper name) LA

Both Slavic and Arabic exhibit double-diminutive formation, i.e., an additional diminutive-like morpheme is added to a primary diminutive. In Slavic, this derivation comprises of doubling **K**, with the important clarification that only the external **K** morphologically displays ϕ -features, (13). In Arabic, the double-formation combines the stem-internal and a stem-external derivation where the stem-external derivation is realized as **F**, (14).¹²

- (13) stół.M.SG ‘a table’ → stol-ek ‘table-**K**.M.SG, a small table’ → stol-eč-ek ‘table-**K**.M.SG-**K**.M.SG, a very small table’ CZ

¹¹Slavic and Arabic diminutives thus differ from diminutives in German or Dutch that change the gender of the base. The differences go beyond gender: German and Dutch diminutives, unlike their Slavic and Arabic counterparts, individuate mass nouns (Moroccan Arabic individuates mass nouns by **F** but this formation only yields a unit reading, not a diminutive reading). Also, to our knowledge, gender changing diminutives cannot double.

¹²In Hebrew, we also see two specific morphemes, where only the second one is **F** (e.g., DeBelder et al 2009).

- (14) a. arnab ‘rabbit.M.SG’ → arnub ‘rabbit.DIM.M.SG’ → arnub-i ‘rabbit.DIM.M.SG-**F**:SG; a cute small rabbit’ LA
- b. mHammad.M.SG (proper name) → Hammod..DIM.M.SG’
→ Hammod-i.DIM.M.SG-**F**:SG; cute/sweet Hammod’ LA
- c. Aya.F.SG (proper name) → Ayooš..DIM.F.SG’ → Ayooš-i.DIM.F.SG-**F**:SG;
cute/sweet Aya’ LA

The stem-external morpheme **F** is merged as an *adjunct*.¹³ The most telling piece of evidence is that the stem-external **F**, technically FEM.SG., is invisible to agree, as demonstrated in (15). That is, the grammatical gender of the double-diminutives is strictly based on the grammatical gender of the nominal base, instead of the feminine suffix.¹⁴ The adjunct status also explain why in both language families, diminutives can be doubled (or even tripled).

- (15) al-arnub-i nam b-Hodn-ii
the-rabbit.DIM.M.SG-**F**:SG sleep.3M.SG.PST in-lap-my
‘the cute bunny slept in my lap.’

Semantically, diminutive doubling yields additional semantic readings (a higher degree of a small size), and additional pragmatic readings (affectionate, e.g., Dressler and Barbaresi 1994; Jurafsky 1996; Fassi Fehri 2017).

While this function is absent in Slavic **K**,¹⁵ primary and doubled-diminutive formation in Arabic also yields an augmentative interpretation (i.e., a large size of the nominal denoted by the base). While the primary augmentative meaning is derived stem-internally, the stem-external derivation either adds a higher degree of large size (or importance etc.), or additional pragmatic readings. Structurally, the derivation parallels that of diminutives. The different interpretation is triggered by the lexical semantics of the root and the context. As in diminutives, the stem-external **F** does not change the grammatical gender of the base nominal, i.e., it is an adjunct, as demonstrated in (16).

¹³See, e.g., Wiltschko and Steriopo 2007 for an argument that some diminutives are structurally adjuncts, while some are functional heads

¹⁴When the relevant context is provided, *al-arnub-i* can also mean a female bunny. In this case **F** is a morphological reflex of conceptual gender instead of a double-diminutive, and consequently, the nominal triggers feminine agreement:

- (i) al-arnub-i nam-et b-Hodn-ii
the-rabbit.DIM.M.SG-**F**:SG sleep.3PST-F.SG in-lap-my
‘the she-bunny slept in my lap.’

¹⁵Although there are other lexically specified derivational morphemes that yield related meanings. See, e.g., Steriopo (2008, 2013); Khrizman (2019).

- (16) raḥīl.M.SG. ‘traveler’ → raḥḥaal.AUG.M.SG. ‘big traveler’
 → raḥḥaal-**at** raḥḥaal.AUG.M.SG.-**F**:SG ‘famous big traveler’
 MOROCCAN A.; Fassi Fehri 2016: 238, (40)

2.5 Individuation

Arabic **F** also productively individuates (e.g., Zabbal 2002; Acquaviva 2008; Ouwayda 2014; Fassi Fehri 2017, 2018). In this functional facet, **F** forms singulatives, i.e., individuated collective nouns (called batch nouns in Borer and Ouwayda 2010), (17), and individuated events, (18). Structurally, individuated nominals become grammatical feminine (i.e., they trigger feminine agreement etc.), i.e., **F** turns a MASC nominal into a FEM. There are no masculine-based individuation formations.

- (17) a. Tabšuur ‘chalk’ (batch noun) → Tabšuur-**a** ‘chalk-**F**:SG, a piece of chalk’ LA
 b. Saxr ‘stone’ (batch noun) → Saxr-**a** ‘stone-**F**:SG; a piece of stone’ LA
- (18) a. raqaša raqš-an
 danced dance-ACC
 ‘he danced some dancing’
- b. raqaša raqš-at-an/ raqš-at-ayn
 danced dance-**F**:SG-ACC/ dancedance-**F**:SG-DU
 ‘he danced a dance/ two dances’

MOROCCAN A.; Fassi Fehri (2017, 226, (11))

Although certain additional restrictions apply (see, e.g., Borer and Ouwayda 2010),¹⁶ both singulatives and individuated events can be further pluralized.

2.6 Group formation

In Arabic, **F** productively derives group formation (e.g., Fassi Fehri 2017, 2018;¹⁷ Ouwayda 2014; Kramer and Winchester 2018), (19). From the morpho-syntactic point of view, this formation turns a MASC noun into a FEM singular noun. Unlike singulatives, these group denoting nouns cannot be pluralized.¹⁸

¹⁶In Lebanese and Levantine Arabic, the singulative must be definite or modified by an agreeing numeral (not all Arabic numerals combine with plural nominals; only the numerals that do license pluralized singulatives); adjectival modification is sufficient for pluralized individuated events. The restriction doesn’t seem to be present in Moroccan Arabic: Fassi Fehri (2017) reports that **F**-individuated mass nouns (not discussed here) can be bare plurals. Note that the requirement to be further modified is attested with other individuating tools in the languages, for instance, with specific indefinites.

¹⁷Fassi Fehri calls this formation a plurative.

¹⁸The corresponding form exists but it means, for example, a group of female believers, instead of a plurality of groups of believers.

- (19) mtdyyen ‘religious.M.SG, a believer’ → mtdyn-i ‘religious-**F**.SG, a religious group’
LA

In Slavic, group formation by **K** is restricted to numerals, (20-a), quantifiers (Veselovska 2018), and pluralia tantum (Petr et al. 1986), (20). Unlike in Arabic, these group-denoting nominals can be pluralized, with the numerals and quantifiers behaving like regular plurals, and pluralia tantum requiring a counting morphology specific to aggregates (Grimm and Dočekal, in press).

- (20) a. dvě děvčata ‘two girls’ → dvoj-ka děvčat ‘two-**K**.F.SG girls.GEN, a group of two girls’ CZ
- b. pár děvčat ‘a few girls’ → pár-ek děvčat ‘couple-**K**.F.SG girls.GEN, a group of two girls’ CZ
- c. nůž-ky ‘knife-**K**.PL, scissors’ běž-ky ‘run-**K**.PL, cross-country skis’, sjezdovky ‘downhill_ride-**K**.PL, downhill skis’ CZ

2.7 Interim summary

In this section we have seen that there are striking parallels between **K** and **F** in the profile of their structural homophony. We have also seen that formations based on **K** and **F** range from categorical (nominalizations) to functional, that their structural properties range across a number of distinct syntactic features and functional heads (gender, number, division, possibly person; degree) and that they yield pragmatic readings. We argue the range of functional properties is not accidental. It points in the direction of an underspecified head operating on values features of its sister. We explore this idea in the next section.

3. The case for i^*

The intuition for our proposal comes from the observation that the feature composition of each instantiation of **K** and **F** is closely tied to the feature make-up of the corresponding functional projection. We argue that **K** and **F** are morphological realizations of an underspecified head, which we call i^* (loosely inspired by the interface-sensitive i^* of Wood and Marantz 2017), in the context of an extended nominal projection. We propose that i^* is a *polarity* operator of sorts¹⁹. We define its lexical content as a function that takes a specific feature, or a group of features of its syntactic sister as an argument and returns the ‘reversed’/negated value²⁰ of the feature. Since a functional head and its corresponding projection is defined by its features, the output of i^* returns the same ‘category’ as the fea-

¹⁹Technically, i^* is a syncategorematic operator.

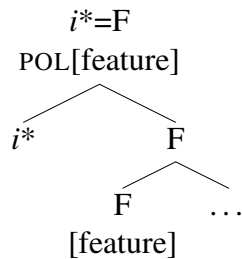
²⁰For an implementation of the value reversal see below.

ture(s) of its sister.²¹ Thus, the functional interpretation of i^* is a function of its structural position, in that i^* takes its core properties from the head whose features it modifies. To give a couple of concrete examples, when i^* attaches to a category defining head, then it functions as a category defining head; when it attaches to an individuating head, then it functions as an individuating head etc.

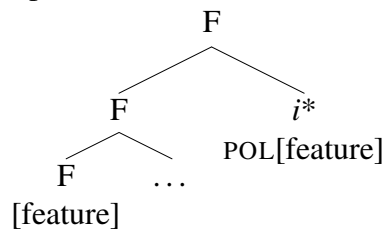
Since c-selection properties of i^* are restricted only by a polarity (essentially, binary, instead of privative or common value), i^* can merge at any level of the extended nominal domain, as long as the relevant projection contains a feature that is in the domain of the polarity function. That is, we expect to find i^* at the level of a categorizing head, modifying category defining features (nominalizations), at the level of DIVP modifying division properties of a nominal (individuation, group formation), at the level of the optional DegP (forming diminutives and augmentatives), modifying PERSON features of π P, residing in Spec, DIVP (den Dikken 2019) (conceptual gender), and at the level of NumP and D (not discussed here).

Moreover, i^* can merge with the output of prior merger of a head, or a specifier, and project. Conversely, it can be an adjunct and not project. The two representations are schematically given in (21).

- (21) a. When the feature output of i^* projects:



- b. When the feature output of i^* does not project (adjunct; diminutives, plurals of plural):



Before we proceed with demonstrating the properties of i^* on select concrete examples, a clarification on our morphological assumptions is in order. We assume a realizational view of morphology (Distributed Morphology). Specifically, we assume that a tri-consonantal template in Arabic subsumes the nominal structure up to DIV; elements

²¹We assume that structure building is subject to structural economy, i.e., no feature-vacuous structure building is possible. For i^* to be licensed, the merge of i^* must yield a distinct structure. Since i^* is a polarity operator, this economy condition is trivially satisfied as long as the value of the i^* feature is distinct from the value of the corresponding feature in the sister projection.

merged above DIV head, including the specifier, are realized outside of the template. Further, we assume that **K** and **F** are a default morphological realization of the application of i^* in the nominal domain. Concretely, under the Distributed Morphology point of view, morphemes are not present in the syntactic derivation. Instead, they are mapped onto a syntactic structure based on two types of information: features and their syntactic context. Since i^* modifies features present in the syntactic representation, morphology receives a conflicting input that cannot be resolved by an insertion of a feature (or a set of features) specific morpheme. That is, after morphology has realized features in the corresponding syntactic domain, there remain unrealized features carrying conflicting values. We argue that **K** and **F** are a morphological reflex of these additional features.

In the remainder of this section we demonstrate how i^* works on a few empirical cases.²²

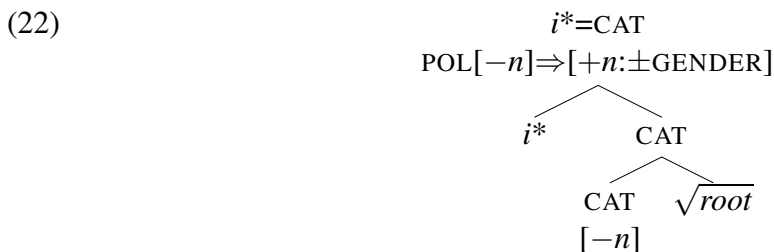
3.1 Category change

We start our demonstration of properties of i^* at the lowest functional level, i.e., at the categorization part of the structure. By definition, when i^* merges to a category head, it turns into a category head, and outputs a polarized value of the feature of the categorizing head. The question is what such polarization of a category head looks like.

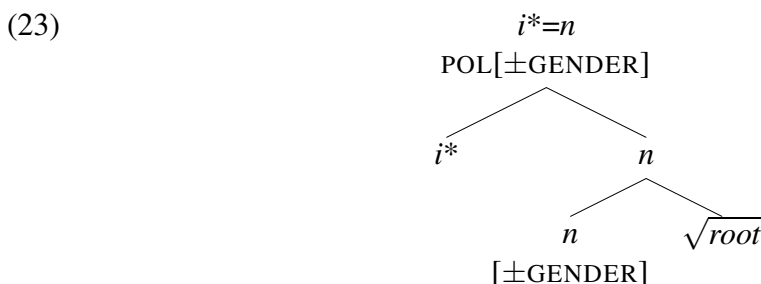
We take seriously the idea that the category of a functional head is defined by its syntactic features. Moreover, we follow, for instance, Kramer (2015) and Veselovská (2018), in that a valued $[\pm\text{gender}]$ feature is the defining feature of n . That is, we can divide category heads as $[\pm n]$ based on the presence or absence of a valued $[\pm\text{gender}]$ feature. With this assumption in place, there are two cases to consider: a structure in which the category head is $[-n]$ and a structure in which the category head is set as $[+n]$.

When i^* attaches to a category head, more precisely to its projection, labeled as $[-n]$, it reverses the category value to $[+n]$, and in effect it behaves as a nominalizing head. This derivation is schematically represented in (22). Since the new $[+n]$ value corresponds to $[\pm\text{gender}]$ feature, the concrete value will get input as part of late insertion of the associated root. Since the value is set as $[\pm\text{gender}]$, we expect the structure to yield both $[+\text{gender}]$ and $[-\text{gender}]$. Further, we expect i^* to nominalize any $[-n]$ category. This is precisely what we find in nominalizations by **K** in Slavic. As we have demonstrated in section 2.2, **K** can nominalize verbs, adjectives and prepositions, and the new nominal is grammatically either masculine ($[-\text{gender}]$) or feminine ($[+\text{gender}]$). Strikingly, nominalization by **K** does not yield neuter nouns. This is expected under the hypothesis that neuter is complex feature ($[-\text{person}, -\text{gender}]$; e.g., Bartošová and Kučerová 2016, 2018) and that its person component is not available to structural manipulation until later in the derivation when πP is projected.

²²The proceedings format does not allow us to go through each empirical case discussed in section 2.



Let us now turn to derivations in which i^* attaches to a category head valued as $[+n]$, more precisely, when i^* applies to the $[\pm gender]$ feature of the category head.²³ In this case, i^* returns the reversed value of the gender feature, as schematized in (23).



We thus expect that when **K** derives a nominal from a nominal, only nominals that are either $[+gender]$ (feminine) or $[-gender]$ (masculine) can participate in this derivation. Further, we expect that when the base of N-to-N conversion is feminine, the newly derived noun is masculine, and vice versa. This is precisely what the pattern we see in Slavic N-to-N conversions by N, as discussed in section 2.3.

In Arabic, category change yields a distinct template insertion, and in turn does not lend itself easily to this type of investigation.

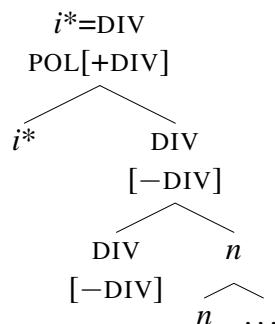
3.2 Individuation

Let us now turn to the next level of the extended nominal domain. Following Borer (2005), we assume that nominal roots are by default not individuated. Instead, an individuating projection (DIVP) must be merged. If i^* is an underspecified head that can attach at any level of the functional projection, then we expect to see an realization of i^* at the level of DIVP as well, as long as DIVP carries a polarizable feature.

Arabic has a class of genderless unindividuated nominals, so called batch nouns, in which the individuating functional head, DIV, head is set up as $[-DIV]$. That is, batch nouns provide a structural environment with the type of feature i^* can apply to. Specifically, when i^* attaches to a DIV projection, it changes the polarity of the $[-DIV]$ to $[+DIV]$, as schematized in (24).

²³ i^* could also apply to the $[+n]$ categorial feature itself but then it would derive a non-nominal structure. We leave cases of i^* in non-nominal contexts aside.

(24)



As we have seen in section 2.5, batch nouns can indeed be individuated, and the change is reflected in the morphology as **F**. Furthermore, since the [+DIV] feature projects, this type of individuated nominals can be pluralized.

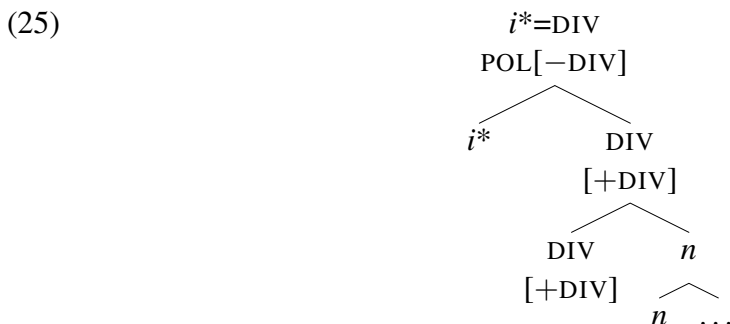
The present proposal thus fundamentally differs from other existing proposals, such as that of Kramer (2009) or Fassi Fehri (2018). For those authors, **F** corresponds to a feminine gender feature in syntax. In contrast, for us **F** is purely a morphological reflex of conflicting values of the DIV feature. The proposed implementation thus raises a non-trivial question: if **F** is solely a morphological reflex of DIV features with conflicting values, why does an individuated batch noun trigger feminine agreement? Here we follow Bobaljik (2008), Arregi and Nevins (2012), among others, and argue that feminine agreement is a morphological reflex of post-syntactic copying of the morphological realization across the agree chain between the nominal and the agreeing element (a predicate or an adjective).

Another question that arises is why the Slavic **K** doesn't lend itself to individuation as its Arabic counterpart does. We argue that the lack of individuation in Slavic provides additional empirical support for the polarity nature of i^* . We argue that in Slavic the DIV feature is not binary. Instead, it is set to a general individuation feature (in parallel to general number; e.g., Corbett 2000, Wiltschko 2008).²⁴ The general individuation feature is compatible both with the [+DIV] and [-DIV]-like interpretation. Consequently, the DIV feature in Slavic is not in the domain of application of i^* , and **K** does not individuate.

3.3 Group formation

Since the DIV feature in Arabic is binary, we expect to see cases in which the application of i^* turns the [+DIV] feature into [-DIV], i.e., a countable structure becomes uncountable, as schematized in (25). We argue that this is the case of the group formation by **F** discussed in section 2.6. As with individuation, morphology realizes the conflicting values of DIV as **F**.

²⁴This move is motivated by work on semantic properties of number in Slavic nominals (e.g., Grimm and Dočekal in press, building on Krifka 1995).



A consequence of the proposed structure is that the structure derived by i^* cannot be pluralized because plural requires an individuated, i.e., [+DIV] structure. We further argue that the merge of another layer of i^* that would reverse the polarity back to [+DIV] is blocked by structural economy. If i^* projected twice, the output of the iterated merge would be equal to the merge before the first i^* was merged (structural economy violation).

As for Slavic **K**, we expect that there should be no group formation by i^* because i^* cannot take the general individuation feature as its argument. Yet, we reported cases of group formation by **K** in section 3.3. Upon a closer look we see that these cases are rather different from their Arabic counterpart. The Slavic cases do not involve direct manipulation of the DIV feature. Instead, group formation is a side-effect of other processes. In the case of group formation based on quantifiers and numerals, as in (20-a)–(20-b), it is a side-effect of a category change by **K**, namely, the derivation of a noun from a quantifier and a numeral, respectively. The group meaning is tied to the lexical semantics of the newly derived lexical item. The derivation of pluralia tantum by **K**, as in (20-c) is similar. Here we also see an effect of lexical semantics, this time tied to noun-to-noun conversion at the level of roots (for reasons of space, details not discussed here).

4. Conclusions and open questions

We presented an empirical study that provides evidence that there is a class of structural building operations that are in important structural sense underspecified, and that a variety of seemingly varied functional projections can be unified under the underspecification approach. Our proposal differs from existing proposals that account for structural homophony by allowing a feature such as gender or number to appear (and project) on a variety of projections (Steriopo and Wiltschko 2010; Ritter 1993; Déchaine 2019; Fassi Fehri 2017, 2018; Mathieu 2012, among others) in its approach to the grammar architecture. While constructionist approaches raise non-trivial questions about the role of projecting features for c-selection, while simultaneously overgenerating²⁵ and undergenerating²⁶ the range of

²⁵Since the feature values are not directly derived from the features already present in the structure, these approaches predict, e.g., gender infused projection in cases our proposal blocks, such as Slavic individuation system.

²⁶For example, a constructionist gender system of Fassi Fehri cannot be extended to instances of **K** that are not gender-based.

possible feature combinations and the choice as to which one should project, our system preserves c-selection as the primary structure building mechanism and clarifies the distribution of labour between morphology and narrow syntax. There are of course many open questions, such as why these particular syntactic interpretations, why we see this type of structural homophony in some languages but not others, and whether we can find *i**-like behavior in other projections as well. The so-called reflexive in Slavic might be a good candidate for *i** in vP. For reasons of space, these questions, as well as a detailed account of the remaining empirical data presented in section 2, must await another occasion.

References

- Ackerman, Lauren. 2019. Syntactic and cognitive issues in investigating gendered coreference. *Glossa: a journal of general linguistics* 4(1).
- Acquaviva, Paolo. 2008. *Lexical plurals: A morphosemantic approach*. Oxford: Oxford University Press.
- Acquaviva, Paolo. 2019. Categorization as noun construction: Gender, number, and entity types. In *Gender and noun classification*, ed. Éric Mathieu, Myriam Dali, and Gita Zareikar. Oxford – New York: Oxford University Press, 41–66.
- Arregi, Karlos and Andrew Nevins. 2012. *Morphotactics: Basque auxiliaries and the structure of spellout*. Dordrecht Heidelberg London New York: Springer Science & Business Media.
- Bobaljik, Jonathan. 2008. Where's Phi? Agreement as a post-syntactic operation. In *Phi-theory: Phi features across interfaces and modules*, ed. Daniel Harbour, David Adger, and Susana Béjar. Oxford: Oxford University Press, 295–328.
- Borer, Hagit. 2005. *Structuring sense*, vol. 1. In name only. Oxford: Oxford University Press.
- Borer, Hagit and Sarah Ouwayda. 2010. Men and their apples: Dividing plural and agreement plural. A talk delivered at GLOW in Asia VIII, Beijing Language and Culture University, August 12–16, 2010.
- Déchaine, Rose-Marie. 2019. Partitioning the nominal domain: the convergence of morphology, syntax, semantics and pragmatics. In *Gender and noun classification*, ed. Éric Mathieu, Myriam Dali, and Gita Zareikar. Oxford – New York: Oxford University Press, 17–40.
- den Dikken, Marcel. 2019. The attractions of agreement: why person is different. *Frontiers in Psychology* 10(978): <https://www.frontiersin.org/articles/10.3389/fpsyg.2019.00978/full>.
- Dressler, Wolfgang U. and Lavinia Merlinii Barbaresi. 1994. *Morphopragmatics: Diminutives and intensifiers in Italian, German and other languages*. Berlin–New York: Mouton de Gruyter.
- Fassi Fehri, Abdelkader. 2017. New roles for gender: Evidence from Arabic, Semitic, Berber, and Romance. In *Order and structure in syntax ii: Subjecthood and argument structure*, ed. Michelle Sheehan and Laura R. Bailey. Language Science Press, 221–256.
- Fassi Fehri, Abdelkader. 2018. *Constructing feminine to mean: Gender, number, numeral, and quantifier extensions in arabic*. Lanham–Boulder–New York–London: Lexington Books.
- Grimm, Scott and Mojmir Dočekal. in press. Counting aggregates, groups and kinds: Countability from the perspective of a morphologically complex language. In *Counting and measuring across languages*, ed. Hana Filip. Cambridge – New York: Cambridge University Press.
- Jurafsky, Daniel. 1996. Universal tendencies in the semantics of the diminutive. *Language* 72(3): 533–578.

- Khrizman, Keren. 2019. Russian diminutives and the semantics of measure, size and individuation. A talk delivered at Tel Aviv University, May 16, 2019.
- Kramer, Ruth. 2009. *Definite markers, phi-features, and agreement: a morphosyntactic investigation of the Amharic DP*. Ph.D. thesis, University of California Santa Cruz.
- Kramer, Ruth. 2015. *The morphosyntax of gender*. Oxford – New York: Oxford University Press.
- Kramer, Ruth and Lindley Winchester. 2018. Number and gender agreement in Saudi Arabic. In *Proceedings of the 17th Texas Linguistic Society*, ed. Michael Everdell, Frances Cooley, Hammal Al Bulushi, Ambrocio Gutierrez Lorenzo, Lorena Orjuela, and Santiago David Gualapuro Gualapuro. 39–53.
- Krifka, Manfred. 1995. Common nouns: A contrastive analysis of English and Chinese. In *The generic book*, ed. Gregory N. Carlson and Francis J. Pelletier. Chicago: Chicago University Press, 398–411.
- Mathieu, Éric. 2012. Flavors of division. *Linguistic Inquiry* 43(4): 650–679.
- Ouwayda, Sarah. 2014. *Where number lies: Plural marking, numerals, and the collective-distributive distinction*. Ph.D. thesis, University of Southern California, Los Angeles, CA.
- Petr, Jan, Miloš Dokulil, Karel Horálek, Jiřina Hůrková, and Miloslava Knappová, eds. 1986. *Mluvnice češtiny [Grammar of Czech]*. Praha: Academia.
- Ritter, Elizabeth. 1993. Where's gender? *Linguistic Inquiry* 24(4): 795–803.
- Steriopolo, Olga. 2008. *Form and function of expressive morphology: A case study of Russian*. Ph.D. thesis, The university of British Columbia, Vancouver, BC.
- Steriopolo, Olga. 2013. Diminutive affixes in the number domain: A syntactic variation. *Questions and Answers in Linguistics* 1(2): 33–56.
- Steriopolo, Olga and Martina Wiltschko. 2010. Distributed gender hypothesis. In *Formal studies in Slavic linguistics: Proceedings of the Formal Description of Slavic Languages 7.5*, ed. Gerhild Zybatow, Philip Dudchuk, Serge Minor, and Ekaterina Pshehotskaya, vol. 7.5. Frankfurt am Main: Peter Lang, 153–172.
- Veselovská, Ludmila. 2018. *Noun Phrases in Czech: Their structure and agreements*. Berlin–Bern–Bruxelles–New York–Oxford–Warszawa–Wien: Peter Lang.
- Wiltschko, Martina. 2008. The syntax of non-inflectional plural marking. *Natural language & linguistic theory* 26(3): 639–694.
- Wiltschko, Martina and Olga Steriopolo. 2007. Parameters of variation in the syntax of diminutives. In *Proceedings of the 2007 annual conference of the canadian linguistics association annual conference*, ed. Milica Radišić.
- Wood, Jim and Alec Marantz. 2017. The interpretation of external arguments. In *The verbal domain*, ed. Roberta D'Alessandro, Irene Franco, and Ángel J. Gallego. Oxford: Oxford University Press, 255–278.
- Zabbal, Youri. 2002. *The semantics of number in the Arabic noun phrase*. Master's thesis, University of Calgary, Calgary, AB.