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## *On the role of person in the mapping of syntactic features onto their interpretable counterparts*

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### *Abstract*

Person features play a role in clearly narrow-syntax processes, for instance in Case checking. Yet, a person feature interacts with animacy and the feature itself is often characterized as [ $\pm$ participant], [ $\pm$ author] etc., a characterization that suggests pragmatic or semantic features instead of *prima facie* narrow-syntax notions. Relatedly, person has been subject to an ongoing disagreement in the literature, with one family of approaches arguing for 3rd person being an elsewhere case, and another arguing for 3rd person being a valued and interpretable feature. This paper provides a programmatic argument that the disagreement in the literature has a principled underpinning. I argue that the representation of the features we identify as person changes between narrow syntax and the syntax-semantics interface. The tests and empirical descriptions are incongruent because they target different modules of the grammar and in turn different grammatical objects. That is, one object is a purely formal and strictly uninterpretable feature present in narrow syntax. This purely formal feature, however, has a syntax-semantics-interface counterpart, namely, a feature bundle formed at the spell-out of a phase. This interface bundle makes person indirectly interpretable (via an association with a semantic index) and gives rise to presupposition-driven morphological realizations of  $\phi$ -features. The empirical core of the paper comes from locality and agreement interactions between person and interpretable versus uninterpretable gender and number. The paper thus contributes to our understanding of mapping of narrow-syntax features onto the interfaces, division of labour among

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the modules, with a special focus on the autonomous status of narrow syntax. Further, the paper advances our understanding of some puzzling properties of person features cross-linguistically.

**Keywords:** person, syntax-semantic interface,  $\phi$ -features, locality, agreement, autonomous syntax

## 1. INTRODUCTION

Person features play a role in clearly narrow-syntax processes, for instance in Case checking (e.g., [Anagnostopoulou 2003](#); [Rezac 2004](#)). Yet, a person feature interacts with animacy and the feature itself is often characterized as [ $\pm$ participant], [ $\pm$ author] etc. ([Ormazabal and Romero, 1998](#); [Nevins, 2007](#); [Lochbihler and Oxford, 2015](#); [Wiltschko and Ritter, 2015](#); [Harbour, 2016](#)), a characterization that suggests pragmatic or semantic features instead of prima facie narrow-syntax notions. Even more explicitly, [Harbour \(2016\)](#), an empirically rich account of a cross-linguistic variation in the domain of person, argues for person being subject to a semantic rule of composition. In addition, there is an ongoing disagreement whether 3rd person is a valued feature or an absence of a person feature altogether. Upon a closer examination we see, however, that authors who argue for 3rd person being syntactically absent (e.g., [Anagnostopoulou 2005](#); [Bobaljik 2008](#); [Kayne 2010](#)) only consider morpho-syntactic phenomena. In contrast, authors who argue for 3rd person having a valued person counterpart base their argument on phenomena that target properties that interact with interpretive notions, such as animacy (e.g., [Ormazabal and Romero 1998](#); [Nevins 2007](#); [Lochbihler and Oxford 2015](#)). To give a concrete example, [Bobaljik \(2008\)](#) demonstrates that the typology of person pronouns, that is, the number of distinct morphological forms per paradigm attested across a variety of distinct languages is smaller than predicted by a system in which a 3rd person feature is a value relevant for morphological realization. Instead, a system without a 3rd person predicts the exact distribution of morphological forms we find. However, [Harbour \(2016\)](#), who focuses on the available interpretations of feature combinations within

the pronominal domain, argues that the 3rd person, more precisely, the corresponding participant features, must enter the computation of number related to person. Thus, while at least some instances of 3rd person features appear to be invisible to the morphology module, they appear to be operational at LF.

This paper provides a programmatic argument that the disagreement in the literature has a principled underpinning. I argue that the representation of the features we identify as person changes between narrow syntax and the syntax-semantics interface. The tests give different results because they target different modules of the grammar and in turn different grammatical objects. That is to say, while 3rd person can be a default or underspecified value for the purposes of the morpho-syntactic computation which renders it effectively invisible for a morphological realization, 3rd person gets eventually semantically interpreted as a discourse participant, and as such it requires a representation visible to LF. The surprising behaviour that has become the subject of much recent work on the nature of person becomes less exceptional once we take the dual representation of person seriously.

The idea that the notion of person corresponds to two different entities is not new. Already [Jespersen \(1924\)](#) argues for the empirical necessity to distinguish between ‘notional’ and ‘grammatical’ person, and the core insight underlies much recent work on the nature of interpretability of  $\phi$ -features, as in [Wechsler and Zlatic \(2000\)](#), or formal and interpretive dissociation in so called imposters (e.g., [Collins and Postal 2012](#)). This paper advances this core insight by providing a formal account of why and how this dissociation arises and what diagnostics can be used to separate the two types of representation, i.e., the narrow syntax person representation akin to purely formal valued or unvalued person features and the LF-legible representation akin to semantically interpretable [ $\pm$ participant,  $\pm$ author, . . . ] features.

Several authors have recently proposed that the person feature is a special feature in that it requires ‘licensing’ at the syntax-semantics interface and that the licensing is modulated by a phase head (e.g., Ritter and Wiltschko 2014; Zubizarreta and Pancheva 2017; Pancheva and Zubizarreta 2018; Kučerová 2018). For example, Zubizarreta and Pancheva (2017); Pancheva and Zubizarreta (2018) explore Ritter and Wiltschko’s claim that languages utilize different grammatical features for purposes of semantic anchoring, i.e., tying the abstract information computed within a phase to an anchored semantic object, such as a possible world or a semantic situation. While some languages, such as English, anchor the compositional semantics of an event built at the vP level by a valued tense feature (for instance, an event of Mary giving a gift to Paula can be anchored by a past tense feature to temporally precede the time of the utterance), other languages, for example, Paraguayan Guaraní, anchor such an event with respect to discourse participants, such as the speaker (for example, in the giving event, the event participants would be coded as [–participant] with respect to the situation of the utterance).

This intuitive understanding of the concept of semantic anchoring will suffice for our purposes as the empirical core of this paper focuses on a particular subset of the problem, namely, the relationship between a person feature and a semantic index within DPs. I follow the literature on anchoring in that person is a privileged feature in the process of mapping a narrow-syntax representation onto the syntax-semantics interface. Specifically, I follow Kučerová (2018) in that there is a formal connection between person and semantic index (for a related insight see, e.g. Longobardi 2008; Landau 2010; Sudo 2012; note also a long tradition of associating D with a referential index, either in terms of D being a head that changes a predicate-denoting NP into an individual-denoting structure, or being the source of a referential index itself, e.g., Williams 1981; Higginbotham 1985; Grimshaw 1990; Wiltschko 1998; Winter 2000; Borer 2005; Longobardi 2008; Landau 2010). The primary purpose of

semantic indices is to track participants in a discourse (in the sense of the file-card semantics of [Heim 1982](#)).

Crucially, a semantic index is not a narrow-syntax object. Instead, a semantic index is an LF object that refers to narrow-syntax features ([Minor, 2011](#); [Sudo, 2012](#)). Technically, a semantic index associated with DPs is a complex structure built around a person feature, a numerical identifier (a random number distinguishing one index from another) and optionally other  $\phi$ -features. Yet, not every person feature gets associated with a semantic index. Even definite DPs can semantically function as predicates, e.g., in copular clauses or construct states ([Rothstein, 2012](#)). I argue that only a semantically-licensed person feature gets associated with a semantic index. The question is what exactly semantic licensing is and how a semantic index becomes part of the syntactic representation accessible to LF.

It follows from the the Y-model and the phase theory (e.g., [Chomsky 1995, 2000, 2013, 2015](#)) that for a feature to be licensed by the syntax-semantics interface, the licensing must happen during spell-out because that is the only point in the derivation where narrow syntax and the interface directly interact. I technically implement the intuitive notion of semantic licensing as part of labelling of a phase by the syntax-semantics interface ([Narita, 2011](#); [Chomsky, 2013, 2015](#)), i.e., identifying a phase with a set of features for the purposes of further syntactic derivation and externalization. Semantic licensing of person can then be understood as an interface process that associates a syntactic person feature with a semantic index. The association process is parallel to feature-adjustment processes at the morphology-syntax interface that make narrow-syntax features realizable by the morphology module (in the sense of Distributed Morphology of [Halle and Marantz 1993](#) and much following work). Here, the association makes a narrow syntax object – a person feature – legible to LF, and in turn interpretable via the association with a semantic index. Two points are critical here: (i) a person feature can be licensed only if it projects to a phase label in

narrow syntax,<sup>1</sup> i.e., narrow syntax is the primary structure-building module; and (ii) a narrow-syntax person feature in and of itself is uninterpretable, i.e., narrow syntax is autonomous of any interpretable information.

With the semantic licensing of person laid out, it is still not obvious why there should be so much confusion in the existing literature on person. I suggest that the lack of clarity follows from the derivational timing of spell-out. The present proposal utilizes an inherent *asynchrony* of spell-out, i.e., the fact that under the Y-model, the part of the structure that is sent to the syntax-morphology interface and thus is no longer accessible to narrow syntax is strictly distinct from the part of the structure that corresponds to a spell-out domain for the syntax-semantics interface. Since only the complement of the phase head is sent to the syntax-morphology interface, there is a part of the phase, namely, its edge (the head, the specifier and adjuncts), that has been licensed by the syntax-semantics interface as part of labelling but remains accessible to the narrow syntax derivation until the next round of spell-out.

The direct consequence of the inherent asynchrony of spell-out is that in addition to features projected in narrow syntax, the label of the phase contains semantically licensed features as well. In turn, both types of features remain accessible to the next stage of the narrow-syntax computation, i.e., the syntax of the next phase. The notion of labelling is crucial here as the label becomes the representational locus of the two types of the person features.

This inherent asynchrony creates a non-trivial methodological problem for the investigation of person at the syntax-semantics interface. We primarily base our

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<sup>1</sup>This paper only discusses cases where a syntactic notion of projection is sufficient. However, the empirical cases discussed in [Zubizarreta and Pancheva \(2017\)](#) and [Pancheva and Zubizarreta \(2018\)](#) require some form of a minimal search as there is evidence that not only features projected to the label but also features at the edge of the phase, i.e., within the head, the specifier and adjuncts, can become part of the licensing process.

empirical generalizations on the morphological realizations of the person feature. However, once we take the inherent asynchrony of spell-out and the possibility of feature adjustments at the syntax-semantics interface (semantic licensing) seriously, we cannot a priori tell whether the relevant morphological realization is directly based on the narrow-syntax version of the person feature, or whether the morphology might realize the person feature already licensed by the syntax-semantics interface. We thus need precise diagnostics to distinguish between a narrow-syntax person feature and a person feature licensed by the syntax-semantics interface.

Since the timing of spell-out coincides with syntactic locality domains, we can utilize different locality properties of narrow-syntax person versus semantically licensed person as reliable diagnostics. Namely, we expect a narrow-syntax person to be available for feature checking throughout the narrow-syntax derivation. In contrast, we expect to see effects of semantically licensed person to coincide with phases and structures larger than a phase but never in a structure smaller than a phase. Once a person feature is semantically licensed, i.e., associated with a semantic index, its properties can no longer be distinguished from those of the corresponding index. Consequently, we expect the domains of relations based on semantic index to coincide with semantic licensing of person.

Three empirical domains immediately offer themselves to such an investigation: First, the domain of interpretable gender (because of gender presuppositions tied to person features, e.g., Heim 2008; Sudo 2012); second, semantically based number (because of the role of semantic indices in semantic plurality, e.g., Link 1983; Rullmann 2003); third, binding and coreference (because of the role of coindexation, e.g., Heim 1998; Roelofsen 2008, 2011). Crucially, although these three phenomena clearly have a semantic-licensing component, they have a narrow-syntax counterpart: semantically based gender and number can be a goal of syntactic agree, as in

agreement with coordinations; as for binding, although binding requires some form of LF licensing, it is based on narrow-syntax representation (c-command).

If this logic is correct, the current proposal makes a specific prediction about cross-linguistic variation. If we assume that cross-linguistic variation is localized at the level of features (the so-called Borer-Chomsky conjecture), it follows that any cross-linguistic variation in person licensing is expected to affect all three domains, i.e., interpretable gender, number and binding, simultaneously.

Section 2 discusses the proposed model of mapping narrow syntax features onto the interfaces in more technical detail. Section 3 discusses several case studies that support the theoretical distinction between the person feature as a narrow-syntax object and semantically licensed person as an object that arises at the syntax-semantics interface via an association of a syntactic person feature with a semantic index. Section 4 addresses the question of cross-linguistic variation and discusses some open questions the proposal raises.

## 2. $\phi$ -FEATURES AT THE INTERFACES: STEP-BY-STEP

Let us start by outlining some basic assumptions about the nature of narrow-syntax derivations and spell-out in order to have a concrete model against which to discuss the data from the rest of this section. The theoretical model will also help with identifying features and domains which we expect to be relevant to our discussion.

I assume a model of grammar architecture in which syntax is a fully *autonomous* module with no operations being dependent on morphological or semantic information. The consequence of this approach is that narrow-syntax  $\phi$ -features are strictly uninterpretable formal features. Interpretive effects arise only at the syntax-semantics interface as part of person licensing during labelling and transfer. The logic is parallel to that for morphological realization of narrow-syntax structures: narrow-syntax features do not come with a diacritic as to whether they are going to



be morphologically realized. Instead, morphological realization is determined by the syntax-morphology interface.

As for their valuation,  $\phi$ -features come to the derivation either valued from the lexicon or unvalued. If they come unvalued and if there is a matching valued feature, they get valued by agree within narrow syntax. A  $\phi$ -feature can be valued at the syntax-semantics interface as well but only if it remains unvalued in narrow-syntax, i.e., when there is no matching feature from the lexicon. The latter process has been termed valuation from the context (e.g., [Steriopo and Wiltschko 2010](#)). Consequently, we expect to see semantic feature valuation to arise only at the phase level, while syntactic valuation can take place in a structurally smaller domain.

This theoretical distinction in feature valuation comes with a methodological caveat. Features ‘visible’ in the morpho-phonological realization, i.e., the only representation we have direct access to, can be based on three distinct sources. Morpho-phonological realization can be based (a) on mapping of syntactically valued features, (b) on mapping of semantically enriched features, i.e., features without a value from narrow syntax but with reference to their corresponding semantically licensed feature (here person, discussed in detail below), or (c) it can be a morphological default (last resort) of unvalued syntactic features (as in [Béjar 2003](#)).

If a feature gets valued within narrow syntax we do not expect to see any interesting interactions in the corresponding minimal spell-out domain. However, if a feature is not valued within narrow syntax, there are two possible outputs: (a) a morphological default, and (b) a feature enriched by the syntax-semantics interface. I follow [Kučerová \(2018\)](#) in that both of these options can be morphologically realized. She argues that morphology can either reflect a minimal spell-out domain, i.e., the complement of a phase head spelled-out after narrow-syntax operations have been completed, or it can reflect a transferred phase, i.e., a phase that has been minimally searched by the syntax-semantics interface (CI), and in turn labelled.

Introducing a derivational ambiguity of this sort might easily lead to overgeneration. Thus we must ensure the model is sufficiently restricted. A first restriction comes from the primacy of syntax, i.e., if a feature can be valued from narrow syntax, it *must* be valued. In turn we expect that the proposed morphological duality should be limited to a fairly small number of cases. A second restriction comes from the syntax-semantics interface. Consider the following example:

- (1) The doctor was quite good. . . .
  - a. He/she was attentive.
  - b. They were attentive.
  - c. #It was attentive.

According to [Kratzer \(2009\)](#) and other work, a pronoun comes to the derivation as a minimal pronoun which I model as a D formed by a bundle of unvalued  $\phi$ -features. Putting aside the technicality of how the valued features get transmitted onto the minimal pronoun, the elementary question is where the valued features come from. Presumably, the root ‘doctor’ is not stored in the lexicon with three distinct sets of  $\phi$ -features. The basic insight is that the features realized on the pronoun must be presupposed or accommodatable. The masculine pronoun (‘he’) introduces two presuppositions: that the doctor is a person and that it is a man. The feminine pronoun (‘she’) also presupposes a person but this time a woman. The critical contrast is between (1-b) and (1-c). The nominal ‘doctor’ asserts as part of its lexical semantics a person, hence, the common ground established by the linguistics discourse presupposes the antecedent to be a person. Yet, the biological gender is not encoded in the linguistics discourse. Consequently, the pronoun must morphologically reflect a person (‘they’ versus ‘it’) but the speaker can chose whether to accommodate the biological gender as well. The continuation in (1-b) then reflects the choice of not accommodating the biological gender (be it for sociological reasons or speaker’s

ignorance), in contrast to (1-a).<sup>2</sup> I argue that what we see at play in this example is a morphological realization of unvalued features restricted by the Maximize Presupposition principle of Heim (1991).

The original formulation of the Maximize Presupposition principle was meant to regulate a choice of lexical items, namely, the definite versus indefinite article in English. Since this paper assumes a realizational morphology, the choice of lexical items can be reformulated as a matter of morphological realizations, and in turn can be straightforwardly extended to morphological realization of features. Under this view, the principle says that if there is a grammatical form that morphologically marks presuppositions satisfied in the given context, the presuppositional forms must be used. If we apply this principle to the examples in (1), we get a syntactic structure with unvalued  $\phi$ -features (a minimal pronoun) but the features end up morphologically realized in a way that obeys the Maximize Presupposition principle.

I argue that the application of the Maximize Presupposition principle in (1) is more general and can affect any unvalued feature, as long as the corresponding feature is presupposed. In turn, only presuppositional features affect morphological output.

This paper is concerned with person as the only syntactic feature from the  $\phi$ -feature set that requires licensing by the syntax-semantics interface. That is to say, person is a narrow-syntax feature that gets associated with a semantic index. In turn, only presuppositional features associated with person within a semantic index can be semantically enriched, i.e., morphologically realized in the absence of a corresponding valued syntactic feature. The notion of semantic enrichment thus strictly refers to morphological realizations of CI-labelled features, not to syntactic valuation of the corresponding narrow-syntax feature. The next section discusses several case studies

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<sup>2</sup>The plural number of ‘they’ results from an interplay of English not having an animate non-gendered singular pronoun and the fact that plural is semantically unmarked, i.e., compatible with denoting a single individual (Sauerland, 2003).

that demonstrate such a semantic enrichment and its locality domains for gender and number.

### 3. CASE STUDIES

#### 3.1 Locality domains in interpretable gender in Italian

Standard Italian has a class of grammatically masculine nouns of professions that were traditionally performed by men but are increasingly performed by women, such as *chirurgo* ‘surgeon’ or *avvocato* ‘lawyer’. In turn, these nouns are in the process of changing their grammatical gender representation. More precisely, as argued in [Kučerová \(2018\)](#), they shift from having a grammatical masculine gender assigned from the lexicon to a minimal nominal representation without a valued gender feature. This minimal representation then allows a larger level of flexibility with respect to contextually assigned gender.

Let us turn to the data. If such a noun denotes a male referent, agreement with such a noun is strictly masculine, as seen in (2).<sup>3</sup>

- (2) il    chirurg-o è    andat-o  
      the.M surgeon.M has gone.M  
      ‘the (male) surgeon is gone’

In contrast, if such a noun denotes a female referent, native speakers accept three distinct agreement patterns, exemplified in (3).

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<sup>3</sup>I only discuss here the distribution of roots that are no longer associated with grammatical gender in the lexicon. For some speakers, however, the gender-valued equivalent of the root exists. Then such nouns are masculine throughout and compatible with both biological genders. I don’t discuss this grammatically masculine type here as it does not shed any light on the nature of person.

- (3) a. la      chirurg-a   è   andat-a  
       the<sub>[F]</sub> surgeon-<sub>[F]</sub> has gone-<sub>[F]</sub>
- b. la      chirurgo   è   andat-a  
       the<sub>[F]</sub> surgeon has gone-<sub>[F]</sub>
- c. il      chirurgo   è   andat-a  
       the.M surgeon has gone-<sub>[F]</sub>  
       ‘the female surgeon is gone’

The pattern in (3-a) is the expected one. Here, we have a noun that has fully switched to a grammatically feminine gender. The switch is visible already in the nominal form itself. The vocalic ending -a, in contrast to the original masculine -o, indicates a gender-related switch attested in so-called mating nouns (Harris, 1991), such as *bambino* ‘baby’ and *bambina* ‘baby girl’. Consequently, all agreeing elements both within the extended nominal projection and within the predicate display feminine agreement.

The patterns in (3-b) and (3-c) are more surprising. Here, the noun itself does not carry a morphological feminine marker. Yet, it triggers feminine agreement. In (3-b) the agreement is feminine throughout. One could thus argue that the final -o on the noun is not a gender marker but a class (declension) marker, and in turn the noun despite its morphological appearance is grammatically feminine. The feminine agreement is then a regular agreement with this grammatical gender feature.

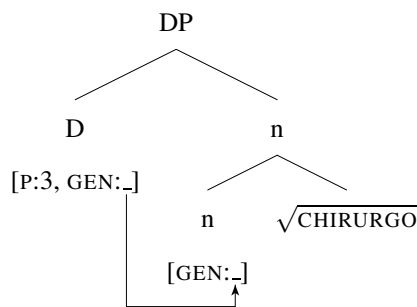
Under this account, the pattern in (3-c) is a mystery. For the predicate to agree in feminine, there must be a feminine feature on the goal, namely, on the DP. Yet, the determiner itself is masculine.

I argue instead that the pattern results from a syntactically unvalued gender feature that only gets its value from the syntax-semantics interface. If the DP is spelled-out before the DP is labelled by the interface, the unvalued feature on D gets realized as a

morphological default – which in Italian is masculine. If, however, the DP is spelled-out only after it has been labelled by the syntax-semantics interface, the determiner is morphologically feminine.

Let us go over the derivations in more detail. I assume that D is merged as a bundle of unvalued  $\phi$ -features and valued person. Since this is a noun undergoing a shift in its grammatical representation from grammatically masculine to a genderless noun, the root and its corresponding nominalizer (roughly, nP) do not come with a valued gender from the lexicon. Consequently, when D probes for matching  $\phi$ -features, there is no gender feature to value the gender feature on D.

(4) Feature distribution from the lexicon & matching:



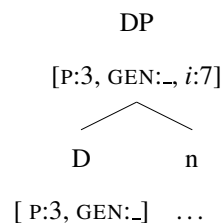
If such a DP gets spelled-out before it is labelled by the syntax-semantics interface, morphology receives an unvalued gender feature as its input. Since gender must be realized on Italian determiners, the system realizes the unvalued gender feature as morphological default, i.e., masculine (Thornton, 2001). This derivation yields the masculine-looking nominal in (3-c). Crucially, the morphological realization in and of itself does not yield a valuation of the syntactic feature in the label (see Béjar 2003 for an extensive argument that features can fail to get valued in narrow syntax and yet be realized in morphology as a morphological default).

If, however, the DP is sent to morphology after it has been labelled by the syntax-semantics interface, the unvalued feature can be enriched by presuppositional features associated with the corresponding semantic index. How does it work?

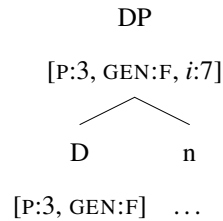
First, a person feature from the phase head (D) projects into the label of the phase. In the next step, when the label is licensed by the syntax-semantics interface as part of spell-out, this person feature is associated with a corresponding semantic index. Technically, a semantic index is a variable to be interpreted by an assignment function (Heim and Kratzer, 1998). Following Minor (2011); Sudo (2012); Podobryaev (2017), I model a semantic index as a complex structure that contains a reference to presuppositional  $\phi$ -features. If there is an unvalued  $\phi$ -feature associated with the person feature in the label, the morphological realization of such an unvalued feature can refer to feature indices within the semantic index but only if such a morphological realization complies with the Maximize Presupposition principle. In turn, morphology realizes the CI-licensed label: more precisely, the syntactically unvalued instance of CI-licensed person within the edge of the phase. In our example, this means that the determiner is morphologically realized as feminine, that is, we derive the nominal in (3-b). The derivation is schematized in (5).  $i : 7$  corresponds to a semantic index, where 7 is a random numeral associated with the index.

(5) CI-licensing person in the DP label:

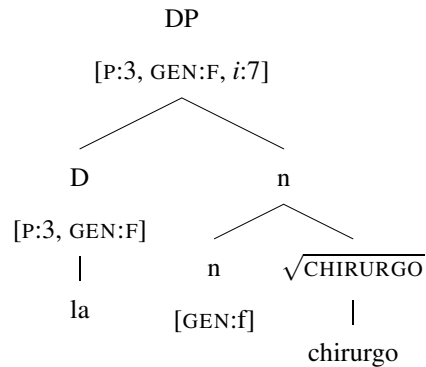
- a. Syntactically projected person gets CI-licensed and associated with a semantic index:



- b. Features affected by presupposition-driven gender realization:



- c. Morphological output:



We have successfully derived the two agreement patterns within a DP, i.e., the nominals in (3-b) and (3-c). The question is why the agreement with the predicate is uniformly feminine in (3-b) and (3-c). I argue that a DP can become a goal for syntactic agree only if it has been fully labelled, including labelling by the syntax-semantics interface (see Narita 2011 for an independent argument that some narrow-syntax operations require CI-labelled objects). In turn, the valuation of the gender feature on the predicate takes place only after the DP label has been licensed by the syntax-semantics interface and strictly refers to the CI-licensed value. As within the DP the morphological realization of feminine gender is driven by the Maximize Presupposition principle. However, because of the derivational timing, when the realization



of the predication agreement takes place, the presuppositional information is always present. Consequently, the predicate agreement in (3-b) and (3-c) is uniformly feminine, irrespective of the morphological realization of the determiner.

The dual agreement pattern observed in (3-b) and (3-c) thus results from an interaction of two properties: no gender feature valuation takes place in narrow syntax and masculine is the morphological default, instead of being a realization of a valued feature.

The account makes a clear prediction: a local agreement optionality of the sort attested within the extended nominal projection in (3-b)–(3-c) is possible only if the semantically enriched value is not the same as the morphological default for the given feature. That is to say, the proposal predicts that morphologically feminine nouns denoting a male referent cannot exhibit a dual agreement pattern. The reason is that the morphologically feminine agreement within an extended nominal projection cannot result from a morphological default of an unvalued syntactic gender feature. Instead, the gender feature must have been valued in narrow syntax. Because of primacy of syntax, features valued in narrow syntax have precedence for the content of the phase label. Hence, once the gender feature is valued in the syntax, the syntax-semantics interface cannot ‘rewrite’ the valued feature in the DP label. Consequently, feminine nouns must agree in feminine in all local syntactic environments even if they denote a male referent. This prediction is borne out. In Italian, grammatically feminine nouns such as *guida* ‘guide’ or *guardia* ‘guard’ obligatorily trigger feminine agreement on predicates, irrespective of the gender of their referent, as demonstrated in (6) (modelled after Ferrari-Bridgers 2007).

- (6) La brava guarda si e’persa nel bosco  
 the good guard.<sub>[F]</sub> her/him lost.<sub>[F]</sub> in the woods  
 ‘The guard lost his/her way in the forest.’

In this section, we have seen an example of a gender interaction mediated by a semantically licensed person at the syntax-semantics interface. Gender realization attested within the DP phase was always based on valued narrow-syntax features or resulted from default morphological realization. In contrast, contextually driven gender valuation is present only once the phase is fully labelled. This empirical pattern supports the proposed model of grammar architecture in which person starts its life in the narrow syntax module and is independent of other  $\phi$ -features. But when it gets semantically licensed by the syntax-semantics interface, presuppositional  $\phi$ -features can be derived from the licensed person feature, i.e., a person feature associated with a semantic index. This being said, the pattern is quite simple and could have arisen via other derivational means. The remainder of this section investigates more complex interactions where other theories fall short.

### 3.2 Locality domains of computing semantic features of a DP coordination

The previous section established our method of investigation. We expect to find interactions in the domain of person and its derived presuppositional  $\phi$ -features only if the relevant feature cannot be valued in narrow syntax. A feature can remain unvalued either if there is no valued counterpart in the relevant locality domain or, as we will see in this subsection, if the features in the label must be established by the syntax-semantics interface for an independent reason.

Coordinated DPs cross-linguistically tend to trigger plural agreement even if both conjuncts are grammatically singular. The plural feature thus must be derived during the derivation, instead of being supplied from the lexicon. Since agree can only match and value features, the plural number feature cannot be derived by agree in narrow syntax. Note that even under multiple-agree approaches (e.g., [Hiraiwa 2005](#)), the goals must match in their value; agree never composes new values. There is indeed rather strong evidence that the plural of coordination is always semantically based,

i.e., the plural corresponds to semantic plurality as a sum of individuals (Munn, 1993; Bošković, 2009; Bhatt and Walkow, 2013).<sup>4</sup>

What does it mean for our investigation of person? As the example in (7) demonstrates, in order to know whether a coordination such as ‘his best friend and editor’ triggers plural or singular agreement, the system must know the ‘identity’ of the individuals in the coordination. More precisely, each conjunct needs to be associated with a semantic index. If the indices are equal, the agreement is singular. If the indices are distinct, the agreement is plural.

- (7) a. his best friend<sub>*i*</sub> and editor<sub>*j*</sub> **is** by his bedside  $i = j$   
 b. his best friend<sub>*i*</sub> and editor<sub>*j*</sub> **are** by his bedside  $i \neq j$

Consequently, if a coordination label contains a plural number feature, the coordination must have been labelled by the syntax-semantics interface. If it wasn’t labelled, the person features have not been semantically licensed yet. Thus, if we have a language in which agreement with coordination as a semantic plurality can be either singular or plural, we can use the plural agreement as a derivational ‘time

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<sup>4</sup>I assume that features of a coordinated DP are computed as a combination of morpho-syntactic and semantic features (Farkas and Zec, 1995; King and Dalrymple, 2004; Heycock and Zamparelli, 2005, among others). Agree-only based proposals have been proposed, e.g., Marušič et al. (2015). However, as argued in Kučerová (2017), they empirically fail short. The empirical argument put forward in Kučerová (2017) relies on a novel observation that in case of gender mismatch on conjuncts, the feature resolution plays out differently depending on the features of the probe. A complete resolution takes place only if the probing feature is person. If the only probing feature is gender, a variety of agreement clashes and gaps arise, which is entirely unexpected under an agree-based approach. Notably, some proposals that argue for an agree-based approach in fact end up using clearly semantic features. See, for instance, the group-feature addition procedure in Grosz (2015).

marker’. That is to say, a singular agreement should be associated only with coordinations that have not yet been labelled by the syntax-semantics interface, while plural is an indication of a labelling by the syntax-semantics interface. Czech is a language that lends itself to such an investigation.

### 3.3 Prediction I: Agreement within a coordination

The core assumption here is that a coordination phrase is labelled as plural only if it has been labelled by the syntax-semantics interface, the reason being that narrow syntax cannot compose two singular features into a plural feature (at least not by the operation of agree which can only match and value within the established matching link). Consequently, the plural feature in the label of a coordination phrase must be a result of labelling of the phrase by the syntax-semantics interface. The plural itself is derived from a coordination of semantic indices associated with a person feature from each of the conjuncts.

If the plural feature arises only when the label is processed by the syntax-semantics interface, the plural feature is not available to any agree relation that takes place before the phase is completed. In turn, we predict that only elements probing after the phase is transferred can reflect the interface enriched value, i.e., can agree in plural. In contrast, elements merged within the phase, i.e., prior the labelling by the interface, such as adjectival adjuncts and determiners, can agree only with one of the adjuncts but never with the whole coordination. The prediction is borne out in Czech. As the example in (8-a) demonstrates, adjectival adjuncts must agree with the closest conjunct, irrespective of whether they modify only the conjunct they agree with or the whole coordination. The same facts hold for demonstratives, (8-b).

- (8) a. \*mladí/      ✓ mladý      muž      a      žena  
           young.M.PL/ young.M.SG man.M.SG and woman.F.SG  
           ‘a young man and a young woman’ or ‘a young man and a woman’

- b. \*ti/          ✓ten      muž      a      žena  
that.M.PL/ that.M.SG man.M.SG and woman.F.SG  
‘the young man and (a) woman’

Similarly, determiners that semantically require plurality, such as *oba* ‘both’, cannot be merged within a coordination phrase either, as demonstrated by (9).

- (9) \*oba/    \*obě      kočka    a    kotě  
both.M/ both.F/N.PL cat.F.SG and kitten.N.SG  
Intended: ‘both cat and kitten’

These two patterns are unexpected under theories that assume that syntax can probe for two goals and compose the plural number value directly from two singular probes. In contrast, the pattern is predicted under the theory proposed here, i.e., a theory in which plurality is based on semantic indices associated with person features and available only after the coordination phrase has been labelled by the syntax-semantics interface.<sup>5</sup>

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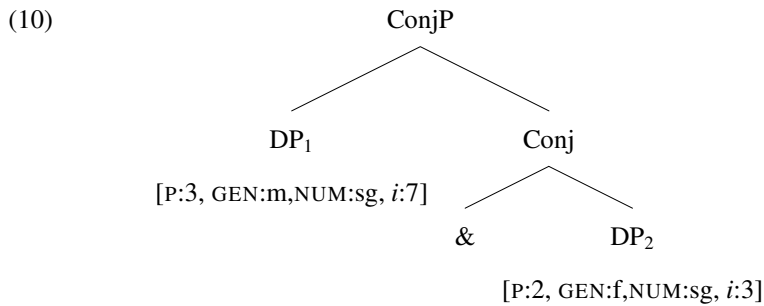
<sup>5</sup>An anonymous reviewer raised a question about semantic plurality for English collective nouns, such as a ‘team’ (see [Smith 2015](#) for a recent overview and account), as they display a similar contrast.

- (i) a. The committee has/have  
b. This/\*these committee

The pattern indeed suggests two types of features: narrow-syntax number valued as singular, and semantic plurality derived as part of CI-labelling. However, the facts are more complex. As discussed in [Sauerland and Elbourne \(2002\)](#), the plural agreement with this type of nouns requires LF (covert) movement. Section 3.5 discusses a connection between overt movement and CI-licensed labels, and some of the basic insight extends to the committee-type plural agreement. However, a thorough discussion of covert movement and its timing in the connection to labelling goes beyond the scope of this paper.

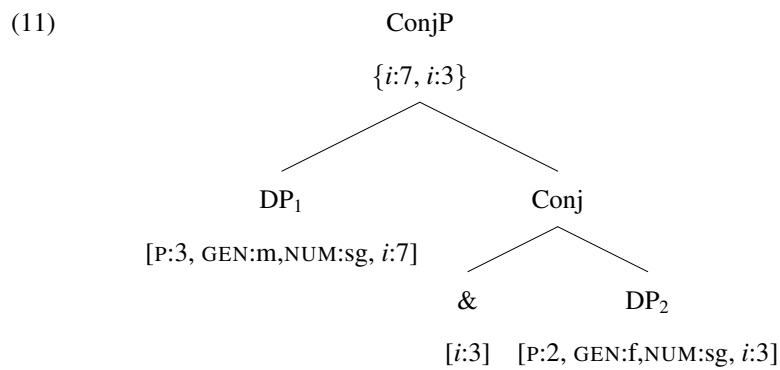
### 3.4 Prediction II: Features of a labelled a coordination

Let us unpack how exactly the labelling at the level of the coordination phrase works. For the coordination phrase to be labelled, each conjunct must be labelled by the syntax-semantics interface. The reason is that if the overall coordination refers to a plurality of indices, the individual conjuncts must be already associated with individual indices. For concreteness, let us assume a structure with two DP conjuncts and  $\phi$ -features as indicated in the tree in (10).



If a coordination phrase needs to be uniquely labelled, it is not obvious what features project to the label from narrow syntax when the value of relevant features do not match (here, person and gender), and if they match, projecting the value of the feature itself would give us an incorrect result (number as singular instead of plural). I argue instead that the label of the coordination is solely based on the indices. The coordination head projects a set-forming feature (for instance, a joiner in the sense of Szabolcsi 2015). This syntactic feature becomes part of the label but it needs to be licensed by the syntax-semantics interface (in a fashion parallel to a person feature). As part of this licensing, the set-forming feature searches for locally accessible semantic indices. I follow Zubizarreta and Pancheva (2017) in that, for the purposes of semantic licensing, the edge of the phase (the head, the specifier and potential adjuncts) forms a local domain. That is, the complement conjunct does not contribute the indexical information directly but the indexical information comes via s-selection

features of the conjunction head (with merge modelled as agree). The second index feature is then added during minimal search as part of labelling the phase by CI. In turn, the indices are added to the label as part of a set formed by the joiner. The resulting structure is as in (11).<sup>6</sup>



As I argued in section 3.1, a semantic index can be enriched by presuppositional  $\phi$ -features, based on the person features associated with the index. Such a presuppositional  $\phi$ -feature is then morphologically realized modulo the Maximize Presupposition principle and it can value unvalued  $\phi$ -features as part of an agree chain as well. As for the coordination label, the relevant  $\phi$ -feature is a plural number feature.

Other  $\phi$ -features might be associated with a semantic index as well. In section 3.1 the relevant feature was gender. As we saw, the gender feature became morphologically visible only if the gender feature in the label was not valued from syntax. Thus

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<sup>6</sup>An anonymous reviewer raised the question of how the system recognizes that [[John and [Bill’s brother]] will form a plural set (or dual), while [[John and Bill]’s brother] will end up being labelled as singular. In short, the head of the latter DP is the D associated with ‘brother’. The person feature of this D head projects to the DP label and in turn gets associated with a single semantic index. The coordinated DP in the specifier does not project its labelled features to the top of the DP. Thus, only the former structure has a label with two indices.

there was a contrast between morphologically masculine nouns that might have been but didn't have to be syntactically valued (because masculine is a morphological default in Italian) and feminine nouns that must have had their gender feature valued in syntax. Thus nouns like *guarda* 'guard' trigger feminine agreement even if they denote a man.

I argue that the presuppositional feature is still part of the corresponding semantic index even if it is not morphologically realized on the DP itself (because of the primacy of features valued in narrow syntax). If that is the case we expect that such a presuppositional feature is detectable in the label of a coordination. The reason is that the label cannot have a valued gender feature from syntax. If there is a gender feature in the label it must be derived as a presuppositional feature from the semantic index.

Concretely, if an Italian noun that denotes a man comes from the lexicon with a grammatical feminine feature, such a noun cannot trigger masculine agreement locally, e.g., on the predicate. This is correct, as we have seen in (6). However, if such a noun is embedded in a coordination, the presuppositional gender feature, here masculine, becomes part of the label because of its association with the semantic index in the label. In turn, we expect a predicate agreement with such a coordination to treat the conjunct as masculine, not grammatically feminine. If, however, such a noun denotes a woman, the agreement is predicted to treat the noun as feminine. Both predictions are borne out, as witnessed by (12). Here, the predicate agreement is feminine if both conjuncts denote women, as in (12-a), but it is masculine if the noun 'guardia' is interpreted as a man, as in (12-b).

- (12) a. La guardia e sua sorella sono andate al cinema sta  
the guard.<sub>[F]</sub> and self sister have gone.<sub>[F.PL]</sub> to-the movies this  
sera  
evening  
'The (female) guard and her sister went to the movies tonight.'



- b. La guardia e sua sorella son andati al cinema sta  
the guard, F and self sister have gone. M.PL to-the movies this  
stera  
evening  
‘The (male) guard and his sister went to the movies tonight.’

[adapted from [Ferrari-Bridgers \(2007, 151, \(4\)\)](#)]

Note that for reasons of space, this paper does not engage in a careful comparison with existing proposals on gender, as in, e.g., [Pesetsky \(2013\)](#); [Kramer \(2015\)](#). These proposals introduce two distinct gender features on distinct functional heads (as part of lexical semantics of the head for [Pesetsky](#), or as an interpretable syntactic feature for [Kramer](#)) within the same extended nominal projection. In turn, the proposals cannot account for the connection between locality domains, spell-out and switches in the gender agreement of the sort seen in [\(12\)](#). Neither can the proposals account for the coordination data discussed in the remainder of this section.

### 3.5 Prediction III: Agreement with a coordination

As discussed, this paper utilizes the inherent asynchrony of spell-out, which is to say, only the morphologically spelled-out structure (the complement of a phase head) is no longer accessible to narrow syntax. The edge of the phase, and more prominently, the phase label – even if already CI-licensed, remains in the derivation until the next round of morphological spell-out. That is, there is a derivational window during which syntax can but does not have to refer to CI-licensed features. We have seen in section [3.3](#) that plural number is not part of the coordination phrase label before the phrase is labelled by the syntax-semantics interface. Yet, there are syntactic features accessible to narrow syntax.

If the current proposal is on the right track, we expect to see agreement optionality with coordinations. Further, we predict that the optionality should be restricted. More precisely, we expect to see optionality only if the relevant agree relation could have

taken place before the phase – here a coordination phrase – was labelled by the syntax-semantics interface. The predictions are borne out in Czech.<sup>7</sup>

As we see in (13), predicate agreement with coordination in Czech is sensitive to the syntactic position of the coordination phrase. If the coordination phrase is in its base-generated position (spec,vP), as in (13-a), the predicate can either agree with the first conjunct, or it can agree in plural with the whole coordination. In contrast, if the coordination phrase internally merges as spec,TP, the predicate agreement must be plural, as in (13-b).<sup>8</sup>

- (13) a. Přišel/ přišli Petr a Marie.  
          came.M.SG/ came.PL Petr.M and Marie.F

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<sup>7</sup>An anonymous reviewer inquired about so-called last conjunct agreement as well. Although the evidence for this type of agreement has become robust thanks to two major experimental studies, [Marušič et al. \(2015\)](#) and [Willer-Gold et al. \(2016\)](#), the empirical facts are not entirely clear, nor is there a good theoretical analysis of the last conjunct facts. As discussed in [Kučerová \(2017\)](#), feature resolution in agreement with coordinations is dependent on the features of the probe. Furthermore, some authors (the first mention I am aware of is [Toporišič 1976](#), see also the analysis in [Kučerová 2002](#)) argue that last conjunct agreement is restricted only to certain predicates (psych verbs and unaccusatives). None of the existing studies controls for these structural factors which makes it difficult to theoretically interpret the data.

<sup>8</sup>An anonymous reviewer pointed out that the pattern in (13) is reminiscent of agreement facts in *there*-constructions ([Munn, 1993](#)).

- (i) a. There is/are a man and a woman outside.  
      b. A man and woman are/\*is outside.

It is possible that the facts are related. However, as pointed out by [Massam \(2013\)](#), there might be additional structural differences between the singular and plural agreement in (i-a) which would make the comparison mute.

- b. Petr a Marie \*přišel/ přišli.  
 Petr.M and Marie.F came.M.SG/ came.PL  
 ‘Peter and Mary arrived.’

I argue that this pattern follows from the current proposal. When the coordination phrase is merged in its based-generated position, it is sufficient for the label to contain only features projected from narrow syntax. In turn, the plural number feature (or any other number feature for that matter) is not part of the coordination phrase label. When the predicate probes for a matching number feature, there is no matching feature in the label of the coordination phrase. The probe continues probing. The next closest probe is the gender feature in the label of the structurally higher DP. The resulting agreement is singular. The coordination phrase, however, might have already been labelled by the syntax-semantics interface. If it has, the plural number feature derived from the set of indices in the label becomes the closest goal. In turn, the resulting agreement is plural. I argue that for a phase to be internally merged, it must have been fully labelled, including having been labelled by the syntax-semantics interface. Thus, when the coordination phrase raises to spec,TP, the label of the coordination phrase contains the derived plural feature. In turn, only plural agreement is possible.<sup>9</sup>

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<sup>9</sup>An anonymous reviewer raised the question of whether look-ahead might be required for a conjunction phrase to be CI-labelled before it can be internally merged. This is a genuine concern. One answer is that the conjunction phrase might not have categorial features that would facilitate internal merge. For all we know, the conjunction head might be category-less. Consequently, the closest target for internal merge is the first conjunct. However, movement of the first conjunct would yield a coordination island violation. That is to say, internal merge is possible but the derivation would crash for other reasons.

The proposal makes a straightforward prediction. The difference between (13-a) and (13-b) does not lie in the linear order, nor does it lie in different hierarchical relations. The only relevant factor is whether the coordination phrase must have been labelled by the syntax-semantics interface. If internal merge enforces labelling by the syntax-semantics interface, we expect that a coordination phrase should obligatorily agree in plural whenever it has been internally merged. The plural agreement should be obligatory even if the coordination phrase linearly follows and is c-commanded by the agreeing predicate. This prediction is borne out, for example, when a coordination phrase is the head of an internally headed relative clause. Since such a coordination phrase must have undergone internal merge, the phrase must have been labelled by the syntax-semantics interface. In turn, as can be seen in (14), predicate agreement with such a coordination phrase must be plural.

- (14) \*Přišel/ přišli chlapec a dívka, co je pozvala Marie.  
 came.M.SG/ came.PL boy.M and girl.M what them invited Marie  
 ‘A boy and a girl that were invited by Marie arrived.’

To summarize, in this section we have seen a rather complex set of interactions of number and gender. I have argued that the interactions follow from a model of the grammar architecture in which a person feature gets associated with a semantic index as part of labelling by the syntax-semantics interface. I have further proposed, following existing literature on presuppositional  $\phi$ -features, that once a person is associated with a semantic index, such an index can be enriched by presuppositional  $\phi$ -features. Such an enriched semantic index can in principle contribute to morphological realization and to agreement. However, this may happen only if corresponding features have not already been projected to the label within narrow syntax. If there is such a valued feature from narrow syntax, the presuppositional feature cannot be detected in the minimal local domain of the label. Yet, such a feature can contribute a value to a higher label lacking such a feature.

#### 4. OPENED QUESTIONS AND CROSS-LINGUISTIC VARIATION

Section 3 explored several case studies that demonstrate rather intricate interactions of gender features present in narrow syntax and gender features derived during labelling of the nominal phase by the syntax-semantics interface. The person feature plays a crucial role in the investigated cases as it provides a formal anchoring between narrow syntax (person feature in the narrow-syntax sense) and the syntax-semantics interface (via the association of the person feature with a semantic index, i.e., the locus of derived presuppositional  $\phi$ -features). The core insight is that person has a central role in mapping of phases onto the syntax-semantics interface.

The idea is not new. For example, [Ritter and Wiltschko \(2014\)](#); [Zubizarreta and Pancheva \(2017\)](#); [Pancheva and Zubizarreta \(2018\)](#) propose that a person feature is an anchoring feature, i.e., a feature that anchors an event to a particular situation. More precisely, according to these authors, person anchors speech participants and in turn the event they participate in. Crucially, [Zubizarreta and Pancheva \(2017\)](#) and [Pancheva and Zubizarreta \(2018\)](#) argue quite extensively that such anchoring via person feature is not a language universal property. Instead, languages differ in what feature is an anchoring feature (e.g., tense is another feature used for anchoring) and on what functional heads such an anchoring feature occurs.

If the locus of the person feature and its anchoring properties differ across languages, we expect a range of cross-linguistic variation with respect to the locality properties of presuppositional  $\phi$ -features. In addition, languages might differ in what domains count as phases. While I have assumed throughout this paper that both DPs and conjoined DPs are phases, the phase-hood of DPs has been questioned. For instance, [Bošković \(2005\)](#) and following work proposes that some Slavic languages do not have DP phases simply because they might not have the D projection at all. Furthermore, [Bošković \(2014\)](#) proposes that phase-hood of a nominal phrase might vary from structure to structure.

With these caveats in mind, it is difficult to make precise predictions for other languages. Despite this methodological difficulty, the present proposal makes clear predictions about *correlations* between certain phenomena.

The first case to consider is a language in which a person could be labelled by the syntax-semantics interface at an earlier stage of the derivation than in Czech. In such a language we expect to find derived presuppositional features in a domain smaller than the domain we identified as a nominal phase in the previous discussion. In such a language, for example, adjectives and determiners might agree in plural even if merged within a coordination phrase. In addition, even a predicate agreement with a local subject could be based on such derived  $\phi$ -features. A possible candidate for such a language is Russian. Russian indeed allows plural agreement within conjoined DPs, as in (15) (Pavel Koval, p.c.), and Russian predicates can agree with the semantic number feature instead of the grammatically expressed one, as in (16).<sup>10</sup>

- (15) molodye mužčina i ženščina  
 young.PL man and woman  
 ‘a young man and woman’

- (16) a. V ètom fil'me igrali [pjat' izvestnyx aktërov].  
 in this film played.PL five.NOM famous actors.GEN  
 b. V ètom fil'me igralo [pjat' izvestnyx aktërov].  
 in this film played.SG five.NOM famous actors.GEN  
 ‘Five famous actors played in this film.’ (Pereltsvaig, 2006, 438–439,  
 (3))

Strikingly, Russian shows exceptional behaviour in another domain independently associated with properties of semantic indices, namely binding. As Nikolaeva (2014)

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<sup>10</sup>As an anonymous reviewer pointed out, Bosnian/Serbian/Croatian is another candidate for such a language. See agreement facts discussed in Willer-Gold et al. (2016) and binding facts discussed in Despić (2011).

discusses, Russian pronouns can bind outside of c-command, although in a quite restricted domain. Namely, possessive pronouns in the specifier of a DP can bind outside of their c-command, (17) (Nikolaeva, 2014, 8, (2)).

- (17) \*Eë<sub>i</sub> učitel’ nica poxvalila Mašu<sub>i</sub>.  
her teacher.NOM praised Maša.ACC  
‘Her<sub>i</sub> teacher praised Maša<sub>i</sub>.’

According to her analysis, this is because the index in Russian is able to syntactically raise to the immediately dominating projection. In the framework developed in the present account, index raising corresponds to person raising or differences in the domain of syntax-semantics labelling.

Alternatively, the syntax-semantics interface could associate person with a semantic index only at a later stage of the derivation. In such a language, semantically-based plural marking on nouns would be optional in some structurally restricted circumstances, predicate agreement with plural nouns would be optional and even plural agreement with conjoined phrases would be optional. Brazilian Portuguese is possibly such a language. In addition to having bare singular nouns, as in (18), Brazilian Portuguese exhibits some surprising agreement properties as well. While some speakers prefer plural agreement with conjoined phrases, others accept singular agreement even if the conjoined phrase is in a derived subject position, as in (19) (Frederico Prado, p.c.).

- (18) Criança lê revistinha.  
child read.3SG comic book  
‘Children read comic books.’ (Munn and Schmitt, 2005, 823, (1b))

- (19) a. A menina e o menino caminharam pra escola  
DET.F girl and DET.M boy walk.PST.3.PL to school  
‘A girl and a boy walked to the school.’  
b. %A menina e o menino caminhou pra escola.  
DET.F girl and DET.M boy walk.PST.3.PL to school

‘A girl and a boy walked to the school.’

Furthermore, speakers accept singular agreement with morphologically plural nouns as well, as witnessed by (20) (Frederico Prado, p.c.).

- (20) Eles caminhou pra escola.  
they walk.PST.3SG to school  
‘They walk to the school.’

The last option to consider is a language in which person is not licensed at the DP level by the syntax-semantics interface at all. Instead, person licensing occurs only on a higher (verbal) phase head. In such a language there might not be any semantic plural at the DP level at all. Instead, we might, for instance, see optional cumulative plurals based on other features. Similarly, such a language might not make a morphological distinction between mass and count nouns with respect to morphological realizations of plurality. Furthermore, such a language might have no lexical anaphors because association with a semantic index and in turn binding would not be morphologically accessible at the DP level. Finally, plural agreement on predicates might always be semantically based. A possible candidate are Tupí languages. See, for instance, the discussion in [Zubizarreta and Pancheva \(2017\)](#) on Paraguayan Guaraní and in [Lima \(2014\)](#) for Yudja.

Aside from cross-linguistic variation, the proposal raises a number of theoretical questions. First of all, the proposal has consequences for our understanding of the operation of agree. For instance, if certain semantically based values become available for agree only after the relevant phase has been labelled by the syntax-semantics interface, we might obtain an illusion of an upward agree. Similarly, whenever D seems to act as a probe (as in some cases of possessive pronouns) we might see an instance of syntax-semantics labelling.



The proposal also raises questions for feature typology. First, is animacy/humanness a separate feature or only a side-effect of person associated with a semantic index? Second, do features like [ $\pm$ author] and [ $\pm$ participant] have any role in narrow syntax or do they also arise only at the syntax-semantics interface via the association of person with a semantic index? Finally, what is the connection – if any – between classifying features and gender if at least some gender features are derived from the association of person with a semantic index modulo Maximize Presupposition?

I leave these questions for future research.

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