Gender: a PF reflection of an edge linker

Halldór Ármann Sigurðsson
Lund University

Abstract

Gender is commonly treated as a central phi-category of syntax, on a par with number and person. This paper argues against this view, claiming that grammatical gender is not part of narrow syntax, instead being part of PF (the externalization component) in gender languages. Nevertheless, gender is a reflection of an abstract D/edge linker in syntax. Phase edge linkers (in the sense of Sigurðsson 2011a, 2014b and related work) are themselves silent by necessity, but they may (or may not) have displaced phase-internal correlates or effects in PF. Personal pronouns, it is also argued, have no lexical content. Rather, they get feature specified in the course of the syntactic and morphological derivation, copying the gender of an antecedent via edge linkers. The facts studied come mostly from Icelandic, a language with a three gender system of the classical three gender Indo-European type. These facts indicate that grammatical gender is not an inherent property of nominal roots and they also suggest that gender reference of both overt pronouns and PRO involves control rather than movement. In addition, they reveal that the gender (conception) of speech act participants accesses formal grammar–via phase edge linkers.

Keywords: gender, edge linkers, coreference, agreement, control, Icelandic

1 Introduction[*]

The central idea pursued in this paper is that overt gender is a PF reflection of an *edge linker*, in the sense of Sigurðsson 2011a, 2014b and related work. The key components of the general edge linker approach are:

- The syntactic computation is driven by an interpretability requirement (as in Chomsky 2001, 2008). That is to say: A phase-internal element must get interpreted in relation to the phase context (structurally higher neighboring phases and the speech act context). Any phase edge contains a set of silent edge linkers and the relations between phases are computed via these linkers. Although silent themselves, edge linkers commonly have overt but displaced effects or correlates in PF.

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[*] For comments and discussions many thanks to …

- Abstract Agree is part of the basic computational system of UG (the initial internal (I-) language faculty) and a prerequisite for successful Merge.
- Overt agreement, in contrast, is a PF phenomenon. The externalization component of language, PF, splits into *deep PF* and *shallow PF*. Overt agreement (morphological feature repetition) is based on hierarchical structures and other information transferred from syntax, but it takes place in deep PF, the post-syntactic externalization computational component. Syntactic hierarchy dissolves into (mainly) linear relations under transfer from deep to shallow PF, the latter comprising phonology and phonetics.
- Features that get no semantic/syntactic interpretation, such as most occurrences of formal gender, are added in the externalization component of individual languages, thus nonexistent in syntax; however, they are indirect reflections of syntactic relations.

I will consider the category of gender in this general perspective.

Gender is one of the central phi-categories, along with number and person (see Harbour et al. 2008). It is prominent in many pronominal systems, common in 3rd person pronouns, but rarer as an overt category in 1st and 2nd person pronouns (see Corbett 1991:128–132, Siewierska 2004:103–107). In addition, it is deeply integrated in many morphological agreement systems. I will illustrate some common properties of gender systems with data from Icelandic, a language with a gender system of the classical three gender Indo-European type (M, F, NT, as in Sanskrit, Latin, Greek, Albanian, Slavic languages, German, etc.).

Icelandic is a radically rich gender agreement language, and its gender morphology is very visible, marked in tandem with case and number (NOM, ACC, DAT, GEN / SG, PL), yielding distinctions like *sterkan*.M.SG.ACC, *sterkrar*.F.SG.GEN, *sterku*.NT.SG.DAT 'strong', etc. Most adjectivally and pronominally inflected categories take part in this, including the following:

- the (definite) article
- adjectives
- past participles
- quantifiers and other indefinite pronouns
- possessive, demonstrative, and interrogative pronouns
- the first four cardinals and ordinals
- semi-predicates like *ein-* 'alone' and *sjálf-* 'self'

Gender agreement is found in a number of domains, including local DP-internal concord and more distant predicative agreement in both primary and secondary (small clause) predicates. DP internal gender concord is illustrated in (1). Any gender-inflected form is inflected for case and number (here nominative plural), but, for clarity, I will for the most part only gloss gender.

(1) a. **M:** all**ir** þess**ir** fjór**ir** kaflar 'all these four chapters'
     b. **F:** all**ar** þess**ar** fjór**ar** bækur 'all these four books'
     c. **NT:** **öll** þess**i** fj**ögur** blöð 'all these four (news)papers'

It is worth noticing that the only elements that are *not* overtly marked for gender in these DPs are the nouns: *kaflar*, *bækur*, *blöð* (that are nevertheless marked for case and number). This gender silence of nouns is a general phenomenon.

 Floating quantifiers show the same obligatory gender agreement morphology as DP-internal nominals and so do adjectival and participial predicates (primary and secondary), giving rise to distant gender agreement. Such agreement (as well as DP-internal gender agreement or concord of the article) is illustrated in (2).[1]

(2) a. Kaflar**nir** voru all**ir** les**nir** nýskrifað**ir**.
         chapters-the.M were all.M read.M new-written.M
         'The chapters were all read newly written.'
     b. Bækur**nar** voru all**ar** les**nar** nýskrifað**ar**.
         books-the.F were all.F read.F new-written.F
         'The books were all read newly written.'
     c. Blöð**in** voru **öll** les**in** nýskrif**uð**.
         papers-the.NT were all.NT read.NT new-written.NT
         'The (news)papers were all read newly written.'

However, paradoxical as it may seem, gender is semantically invisible for the most part, even in languages like Icelandic, where it is glaringly visible in the overt externalized form of the language. First, gender agreement morphology is semantically empty, as simply seen by the fact that the gender markings in (2) do not make the semantics of these examples any richer or more explicit than that of their English translations. Second, most nouns, like *kaflar*, *bækur*, *blöð* in (2), carry no gender semantics.[2] Actually, most languages seem to lack gender as a grammatical category. Of the 257 languages in Corbett 2013a, 2013b, more than half (145 = 56.4%) lack gender and only 1/3 (84/257) have what Corbett calls a "sex-based gender system".[3]

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[1] Largely similar facts are found in, for example, Slavic languages (see, e.g., Corbett 1991, Wechsler & Zlatić 2003) whereas they are somewhat less clear in Romance type systems with only two genders (with one of the two in addition functioning as a default).

[2] There is of course no denying that many nouns denoting living beings have so-called "natural" gender in languages like Icelandic (German, French, Russian, etc.). I maintain, however, that this is not a syntactic fact. See section 3.

[3] However, looking at things form the opposite point of view is also interesting: It is an intriguing question why so many languages have morphological distinctions that are strictly speaking redundant or superfluous and also why they have exactly the distinctions they have.

Gender is commonly treated on a par with other phi-categories, as a category of syntax (Chomsky 1965 and much related work). I will here pursue a different line of reasoning, arguing that overt gender, in the most common sex-based sense, is not part of narrow syntax, not even in PF-rich gender languages of the Icelandic sort. Some categories that are commonly active in gender systems, above all HUMAN and ANIMATE, are plausibly universal syntactic/semantic categories, but FEMALE and MALE seem to be more on a par with honorific categories, reflecting or expressing social rather than syntactic structures. No doubt, even in languages that lack formal gender, sex-distinctions can be lexically prominent (in kinship terms, etc.). However, while socio-lexical markings are part of externalized languages, they are reasonably not part of Universal Grammar or narrow syntax.[4] Let me, however, hurriedly emphasize that overt gender is a reflection of an underlying syntactic relation, but the relation in question cannot be stated in terms of gender, as gender does not enter grammar until in PF.

Given the generative/minimalist view of language (Chomsky 1995, etc.), adopted here, the syntactic derivation proceeds in a single cycle, feeding both interfaces: the sensory-motor (sound/sign) interface (PF), and the conceptual-intentional (semantic/pragmatic) interface. Thus, it is to be expected that gender can be interpreted at the semantic interface, and it sometimes is ("natural gender" phenomena). However, as the facts in (2) indicate, gender is commonly not semantically related at all, even in systems where it is pervasively marked or "interpreted" in the sound/sign form of language. And when it is so related, its "semantic gender" interpretation is established in post-syntactic semantics/pragmatics (naturally so, given that there is such an interface fed by syntax). I will return to this in section 3.

Kayne (2006:289) makes the unorthodox suggestion that gender is a functional rather than a lexical feature, "associated with a list indicating which lexical items … have feminine gender" [or masculine gender, etc.]. Inspired by this idea I adopt an approach where gender is a PF reflection of a silent edge linker, in the sense of Sigurðsson (e.g., 2011a and 2014b). According to the Sigurðsson approach all phases, including DP phases, have a number of such edge linkers.[5] Gender is intimately related to reference, so we may think of the relevant edge linker as an identity index, i. In genderless languages it has no morphological reflections, but in gender languages it is assigned a gender value in deep PF. Immediately prior to gender valuation, the DP in a gender language thus takes the deep PF form in (3) (whereas G_α is universally absent in narrow syntax).

(3) $[_{DP} \ldots i/G_\alpha \ldots [_{NP} \ldots [_N \sqrt{X}\text{-}n]]]$

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[4] For an explicit discussion of the relation between Universal Grammar, narrow syntax and internal and external language see Sigurðsson 2011b, and for an illuminating approach to the syntax-lexicon correlation see Wood 2015.

[5] Definiteness and case are presumably also reflections of relations that involve D/edge linkers. I will focus on only the gender valued edge linker here.

G_α gets valued primarily in two different ways. In case the NP/DP is pronominal, thus not containing any lexical root ($[_N \sqrt{\emptyset}\text{-n}]$), G_α usually gets valued under DP-external control, see section 2. If NP/DP contains a lexical root, such as French feminine *mer* 'sea' or Italian masculine *mare* (cf. Kayne 2006), or Icelandic *kaflar*, *bækur*, *blöð*, the noun containing the root ($[_N \sqrt{X}\text{-n}]$) enters a conventionalized DP-internal Agree relation with G_α (("$[_N \sqrt{mer}\text{-n}]$ agrees with G_{FEM}", etc.).

The root itself does not contain any inherent gender feature on this approach–there is clear albeit commonly unnoticed evidence that gender is a property of the DP as a whole and not of morphemes. Thus, noun roots do not "preserve" gender when they enter derivational processes. For example, Icelandic simple *borg* 'city' is feminine while the derived *borgari* 'citizen' is masculine (*borg* – *borgari* is just one of thousands of pairs of this sort). Not only noun roots but also derivational suffixes are gender "promiscuous", albeit less commonly. The Icelandic suffix *-ing-* is found in masculine (*víking-* 'viking', etc.) as well as feminine nouns (*kenning* 'theory', etc.), *-an* is found in masculine, feminine, and neuter nouns (M *aftan-* 'evening', F *skipan* 'order, system', NT *myndan* 'morpheme'), and so on. Similar facts abound in other languages. Thus, to mention only one example, Swedish *-ande/-ende* is productive in both neuter and common gender nouns, yielding pairs like common gender *boende* 'recident' vs. neuter *boende* 'accommodation'.[6]

I will discuss pronominal gender and coreference in section 2 and noun-related "semantic" gender in section 3. Section 4 discusses predicative agreement and section 5 presents and analyzes hitherto undiscussed gender facts in PRO infinitives that yield support to the edge linker approach pursued here. The study gives support to a number of other general conclusions: (i) personal pronouns are empty of lexical content in narrow syntax (but they gain feature content under control and Agree in the course of the derivation); (ii) coreference is neither "accidental" nor derivable by movement, instead involving control; (iii) so-called "semantic" gender interpretations arise in the post-syntactic semantic/pragmatic interface; (iv) overt gender agreement is a top>down PF process; (v) the gender (conception) of speech act participants accesses grammar via silent speech act C/edge linkers.

2 Pronominal gender and coreference

In gender systems like the Icelandic one gendered pronouns are used to refer to DPs that are not input to any gender interpretation at the semantic interface–do not have or carry any

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[6] In addition gender in Swedish and the other Mainland Scandinavian languages may be a property of whole predications, and not merely of DPs. See Teleman et al. 1999, Åkerblom 2012, Josefsson 2014 on (mainly) Swedish.

gender semantics, as it is usually put. This is illustrated for the singular in (4) and for the plural in (5) (where neither case (nominative) nor number is glossed).

(4) a. Fundurinn$_i$ …   **Hann$_i$**   var   skemmtilegur.
       meeting-the.M … "he"   was   fun.M
       'The meeting … It was fun.'

    b. Hugmyndin$_i$ …   **Hún$_i$**   var   skemmtileg.
       idea-the.F …   "she"   was   fun.F
       'The idea … It was fun.'

    c. Ballið$_i$ …   **Það$_i$**   var   skemmtilegt.
       ball-the.NT   it   was   fun.NT
       'The ball … It was fun.'

(5) a. Fundirnir$_i$ …   **Þeir$_i$**   voru   skemmtilegir.
       meetings-the.M … they.M were   fun.M
       'The meetings … They were fun.'

    b. Hugmyndirnar$_i$ … **Þær$_i$**   voru   skemmtilegar.
       ideas-the.F …   they.F were   fun.F
       'The ideas … They were fun.'

    c. Böllin$_i$ …   **Þau$_i$**   voru skemmtileg.
       balls-the.NT they.NT were fun.NT
       'The balls … They were fun.'

The pronouns can find their antecedent across clause boundaries at a considerable distance, as illustrated in (6).

(6) **Myndin$_i$** hafði verið niðri í kjallara heima hjá foreldrum mínum í mörg ár. En ég hafði verið upptekinn og margt hafði komið upp á. Pabbi dó og ég fluttist í annan bæ og sótti um og fékk nýtt starf. En allt í einu, einn góðan veðurdag í nóvember, mundi ég eftir **henni$_i$** og ákvað að heimsækja mömmu og ná í hana$_i$.

Roughly:

'**The picture$_i$** had been in the cellar at my parents' place for many years. However, I had been busy and a lot of things had come between. Dad died and I moved to another town and applied for and got a new job. But all of a sudden, one nice day in last November, I remembered **it$_i$** ("her") and decided to visit my mom and pick it$_i$ ("her") up.'

Facts of this sort are well known for individual gender languages but they have received little attention from a cross-linguistic and a general theoretic perspective. The question they raise is simple but central: How does grammar "know" what gendered pronoun to pick or generate in each individual case without any support of or resort to gender semantics? – The answer I will be pursuing here is that gender languages copy the formal gender of a coreferential antecedent under control in cases of this sort.

The question is in part the same question as the more general one of how language copes with coreference across clause boundaries, call it "discourse coreference" (see Lasnik 1976, Evans 1980, Reinhart 1983, Kayne 2002, Zwart 2002, etc.). A solution that might seem to be technically possible is to freely generate fully feature-specified pronouns and have their interpretation rely on "accidental coreference" (Lasnik 1976, inter alia). This approach has simplicity as its main virtue, but it meets a number of problems.[7] First, it relies on the assumption that pronouns are ordinary items, included in the lexical array or the numeration (in the sense of Chomsky 1995), but that seems to be incorrect. Rather, pronouns are syntactic and morphological constructs, empty of lexical content in narrow syntax (but gaining in feature content in the course of the syntactic and the morphophonological derivation), as we will see some evidence of shortly. Second, gender is in any case not a feature of individual items but a structural feature of DPs. Third, as seen in (4)-(6), the syntax-context relation is not just about coreference and semantics, it is also about formal agreement features, even when they are not interpreted at the semantic interface. This does not only apply to gender but also to "meaningless" number. Icelandic has quite some nouns that are "plural only" and "singular only" nouns (*pluralia tantum* and *singularia tantum*). The formal number of these nouns is picked up in contexts of pronominal coreference, as illustrated in (7) for the plural only *jól* 'Christmas' and the singular only *fólk* 'people'.[8]

(7) a. Síðustu jól$_i$ …   **Þau$_i$**   voru   yndisleg.
         last.NT.PL Christmas   they.NT.PL   were.3PL   lovely.NT.PL
         'Last Christmas … It was lovely.'
     b. Fólkið$_i$ …   **Það$_i$**   var   yndislegt.
         people-the.NT.SG   it.NT.SG   was.3SG   lovely.NT.SG
         'The people … They were lovely.'

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[7] This approach is referred to as "the pragmatic theory of coreference" by Evans (1980), but that is misleading. The issue is about reference in linguistic context (where speech act context counts as "linguistic"), not about pragmatics or some specific language use. The notion "context" should be kept strictly apart from the notion "pragmatics" (this was not made clear enough in Sigurðsson 2011a).

[8] Plural "semantic agreement" across clause boundaries is acceptable to at least some (minority of) speakers, as opposed to singular "semantic agreement." That is: Some speakers accept *Fólkið$_i$* … %*Þau$_i$* … 'The people … They …', while, to my knowledge, no speakers accept *Jólin$_i$* … **Það$_i$* … 'The Cristmas … It …'.

An accidental theory of coreference has no saying on facts of this sort, whereas they are as expected if pronominal gender/number is copied under coreference with an antecedent, hence not accidental at all. As we will see, there are certain cases where pronominal coreference is "partly free", but it is evident that an accidental coreference approach does not offer an insightful or a satisfactory understanding of coreference and gender.

An approach that is almost diagonally opposite to accidental coreference is developed in Kayne 2002, where it is suggested that coreference is derived in syntax by movement. On this approach, call it the "antecedent movement theory of coreference", pronouns (including PRO) and their antecedents are merged as a single constituent, [NP-pronoun], their coreference relation being established by movement of the antecedent, stranding the pronoun.[9] Thus, the example in (8) (Kayne's (19)), is derived from a structure like (9).

(8) $John_i$ is famous. He_i is smart too.

(9)   is famous (&) [John-he] is smart too

Kayne argues that "there is no accidental coreference in the familiar sense" (2002:138), and about examples like (8) he says: "When a pronoun successfully takes a phrase in a preceding sentence as its antecedent, the two sentences in question form a single syntactic entity, akin to coordination" (2002:138–139). Kayne does not discuss "very long distance examples" like the one in (6), but it would seem that he intends the theory to apply to such examples no less than to "moderately long distance examples" of the more common type in (8). Kayne states (2002:138, his emphasis): "Antecedent-pronoun relations … *require* movement out of a constituent of the form [*John-he*]. That is the *only* way to express an antecedent-pronoun relation".

Kayne does not discuss or define the limits of his approach. If it is meant to be a general theory of coreference it must allow movement out of structures that are otherwise islands to movement (in contrast to the less radical Movement Theory of Control, MTC, in Hornstein 1999 and related work). Also, if a 500 page novel, call it *John's story*, starts by introducing the hero *John* on page one and then refers back to this character with only the pronoun *he*, say 2000 times, to the very last page of the novel, then *John* has presumably moved via 2000 constituents of the form [*John-he*] across the 500 pages, from the last one to the first one and presumably also to the cover. Similarly, antecedent movement would have to apply across speakers, as in (10).

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[9] See also Elbourne 2005 for a "reversed" approach (with many of the same virtues), where pronouns are heads (definite articles) whose complements are subject to NP-deletion. Elbourne does not mention Kayne's analysis, though.

(10) a.   (Paul:) John$_i$ is famous.

  b.   (Ann:) He$_i$ is smart too.

  c.   (Tom:) Yes, he$_i$ is very intelligent.

  d.   (Mary:) Yes, in view of all this smartness and intelligence I am sure that he$_i$ will be nominated.

These consequences are radical and unorthodox but they are not unthinkable. Thus, it is conceivable that speakers incorporate utterances of other speech act participants into their internal grammar and apply antecedent movement into structures that remain silent in their own speech, as sketched for (10d) in (11) (where, for clarity, I use a trace notation).

(11) (Mary:) ~~John$_i$ is famous. [t$_i$-he] is smart too. Yes, [t$_i$-he] is very intelligent.~~ Yes, in view of all this smartness and intelligence I am sure that [t$_i$-he] will be nominated.

It seems less plausible, though, to assume that our hero in the imaginary *John's story* moves 2000 times from the last to the first of the 500 pages of the novel. Notice that given Kayne's approach, it is unattractive to analyze "John" (in both the novel context and the conversation context in (10)) as a silent hanging topic that reconstructs into the clauses where the coreferential pronoun is interpreted. Allowing both general antecedent movement and reconstruction in those cases where the movement analysis does not work renders the approach so powerful that it gets empirically vacuous and impossible to test. In addition, Kayne's approach maximally expands the syntactic workspace, in sharp contrast to the objectives of minimalist phase theory (Chomsky 2001, 2008).

  Although the antecedent movement theory of coreference cannot in my view be upheld, it seems to be essentially right that "there is no accidental coreference" and it is also a fact that grammar can pick up reference and simultaneously set formal feature values across considerable distance. The edge linker approach in (3), repeated here, makes it possible to develop a general understanding of the mechanism involved.

(3)   [$_{DP}$ … i/G$_\alpha$ … [$_{NP}$ … [$_N$ √X-n]]]

As mentioned, pronominal DPs are gender valued under control (by an overt or a covert antecedent, see shortly on the latter). We see such gender valuation at work in (4)–(7) and in (12)–(13).

(12) Mynd**in**$_i$ er skemmtileg. **Hún**$_j$/*hann$_j$/*það$_j$ var   **valin**/*valinn/*valið …
    movie/-the.F is fun.F   "she".F/*M/*N   was   chosen.F/*M/*N
    'The movie is fun. It was chosen …'

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(13) María$_i$ er skemmtileg.   **Hún**$_j$/*hann$_j$/*það$_j$ var   **valin**/*valinn/*valið …

María   is   fun.F   she.F/*M/*N   was   chosen.F/*M/*N

'Marie is fun. She was chosen …'

As suggested by these examples, gender semantics is invisible in the local syntactic derivation of the sentence "She/It was chosen …" That is: The pronoun *hún* 'she/it' enters the derivation as a lexically empty and a non-phi-specified DP-shell of the form in (14); the control relation is mediated via C/edge linkers, but this is not shown here (it will be shown in (16)).

(14)   X/G$_i$ … [$_{DP}$ … G$_i$ … [$_{NP}$ … [$_N$ √Ø-n] …]]
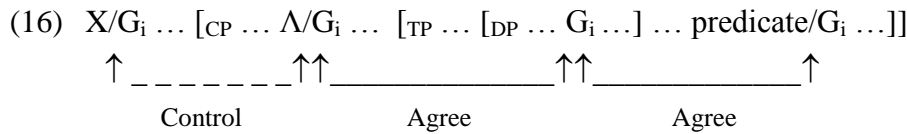   ↑_ _ _ _ _ _↑
          Control

We may refer to this as the *null root analysis* of pronouns.[10] As indicated, the formal gender value G$_i$ (FEM in (12) and (13)) is copied under control from the antecedent X, regardless of its semantic interpretation. At the semantic/pragmatic interface, the FEM value is interpreted as referring to a female being in (13); in (12) it is not. Notice also that the copied formal gender triggers obligatory agreement of the participle *valin* 'chosen', even though it is not present in the structure until after the copying has taken place, an issue I will return to.

Sigurðsson (2014a, 2014b) argues that edge linkers are themselves silent by necessity and I adopt this view here (I will briefly return to this in section 6). Thus, the D/edge does not contain a gender marker; instead it contains a silent linker, an identity index, that copies reference and gender and triggers displaced agreement in gender agreement languages. Even DPs that are not overtly gendered copy gender under control and trigger gender agreement. Thus, as in most other gender languages (see Siewierska 2004:104), first and second person pronouns are not overtly gendered in Icelandic, but they nevertheless trigger the same kind of agreement for gender (number and case) as do full DPs and third person pronouns. This is illustrated for the first person singular nominative pronoun *ég* 'I' in (15); parallel facts apply in the second person.

(15) a.   (Páll:)   Ég   var   **sterkur**.
                I   was   strong.M.SG
         (Paul:)   'I was strong.'
      b.   (María:)   Ég   var   **sterk**.
                I   was   strong.F.SG
         (Mary:)   'I was strong.'

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[10] Cf. the 'zero approach' to pronouns in Kratzer 1998 (partly abandoned in Kratzer 2009, though). I will not discuss number and person here, but for evidence and arguments that also person and number are structural categories, see Sigurðsson & Holmberg 2008, Sigurðsson 2014a.

It thus seems that DPs containing overtly non-gendered pronouns have a D/edge linker valued for gender, the gender value subsequently triggering regular agreement of adjectivally inflected items. The gender valuation of the pronouns is based on the gender of the "speaker" and/or the "hearer". The intriguing question is how this speech participant information gets activated as formal gender features that enter the agreement processes of grammar. Adopting the approach of Sigurðsson (2011a, 2104b), I assume that the clausal phases, CP and vP, have speaker and hearer features among their edge linkers, referred to as the logophoric agent and the logophoric patient, Λ_A, Λ_P. In case one of these linkers is positively set (+Λ_A ("speaker") or +Λ_P ("hearer")), they are gender valued under control by a speech event "antecedent", but when they are negatively set (3rd person) they normally get gender valued by a coreferential discourse antecedent. Subsequently, the gender value is passed down to a pronominal DP ([$_{DP}$ … G_α … [$_{NP}$ … [$_N$ √Ø-n] …]]) under Agree, as sketched in (16). For simplicity I refer to both overt antecedents and silent speech act antecedents as "X/G_i"; "predicate" stands for vP-internally generated adjectivally inflected elements (such as *sterk-* in (15)); the only abstract Agree relations indicated are those that get reflected in PF as overt agreement.

(16)   X/G_i … [$_{CP}$ … Λ/G_i … [$_{TP}$ … [$_{DP}$ … G_i …] … predicate/G_i …]]
         ↑_ _ _ _ _ _ _↑↑_____↑↑_____↑
              Control   Agree   Agree

As already stated, then, pronouns have no lexical substance – instead deriving their feature values by Agree and control in the course of the derivation.

Alternatively, again, one might want to adopt the more traditional lexicalist approach to pronouns and lexical items in general – and to the whole syntactic derivation (as in Chomsky 1995, etc.). On such an approach the derivation takes fully feature specified items as input (the specifications being interpreted or deleted at the interfaces). The Icelandic lexicon would thus have two distinct *ég* 'I' pronouns, one specified for masculine gender, and another one for feminine gender, triggering masculine and feminine agreement in (15a) vs. (15b). However, taking gender to be a lexical feature of pronouns, present right from the start of the derivation, forces "accidental coreference", hence also "accidental gender" (and "accidental number") in cases like (4)–(7) and (12)–(13), where the gender (and number) of the pronouns is entirely predictable, being copied from a coreferential antecedent.[11] Moreover, *ég* is only the nominative form of the first person singular pronoun. The accusative, dative and genitive forms, *mig*, *mér*, *mín*, are also non-overtly gendered, nevertheless triggering gender

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[11] Regardless of how one analyzes coreference one has to develop some account of the fact that e.g. *myndin* 'the picture' can be referred to by *hún* 'she, it' and not by *hann* 'he, it' or *það* 'it'. In other words: On any account there is inevitably a systematic, non-accidental correlation between a pronoun and its antecedent (a property that the present analysis has in common with Kayne's antecedent movement approach).

agreement, as illustrated for the dative *mér* in (17) and (18); the dative is a direct object in (17) and a passive subject in (18).

(17) a. (Páll:)   Hún   bauð   mér   ein**um**.
                she   invited   me   alone.M.SG
       (Paul:)   'She invited only me/me alone.'
    b. (María:) Hún   bauð   mér   ein**ni**.
                she   invited   me   alone.F.SG
       (Mary:)   'She invited only me/me alone.'

(18) a. (Páll:)   Mér   var   boðið   ein**um**.
                me   was   invited   alone.M.SG
       (Paul:)   'I was invited alone / I was the only one invited.'
    b. (María:) Mér   var   boðið   ein**ni**.
                me   was   invited   alone.F.SG
       (Mary:)   'I was invited alone / I was the only one invited.'

The facts are even more intricate in the plural, as sketched in (19) for the nominative *við* 'we'; all the examples mean simply 'we were strong'.

(19) a.   M.SPEAKER + M: Við vorum sterk**ir**.M.PL
    b.   F.SPEAKER + F: Við vorum sterk**ar**.F.PL
    c.   M.SPEAKER + F or NT & F.SPEAKER + M or NT: Við vorum sterk.NT.PL

Similarly, accusative *okkur* triggers accusative plural gender agreement (M.PL *sterka*, F.PL *sterkar*, NT.PL *sterk*).[12] On the lexical approach, the gender information expressed in structures containing non-overtly gendered pronominal forms like *ég*, *mér*, *við*, *okkur*, etc., would have to be silently "lexically" encoded in two or three different ways, despite being entirely derivable from speech event information that comes for free. In short, the assumption that gender is an inherent property of pronouns does not fare any better than the assumption that it is inherent to noun roots. – In addition, a lexical approach to pronouns and other grammatically complex items takes bundles like 3P.F.PL.NOM, 1P.M.SG.DAT, etc., to be syntactically atomic elements. I reject that hypothesis as *ad hoc* and highly implausible (*pace* Chomsky 1995 and related work).

     A lexical approach to pronominal gender is not sustainable. However, there is no question that first and second person pronouns yield "sex semantics" and the same applies to

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[12] Without a NOM/ACC distinction in the feminine and the neuter plural. There are no gender distinctions in the dative and genitive plural (a relief to any second language learner of Icelandic).

the perhaps most prototypical uses of third person pronouns, such as *hún* 'she' in (13). It thus seems that pronominal sex semantics arises at the post-syntactic semantic/pragmatic interface – and I take that to be the case, indeed. So-called "semantic gender" gives further support to this conclusion. I will discuss that in the next section.

3 On "semantic" gender

DPs can behave somewhat differently with respect to gender reference and gender agreement, depending on the semantics of their head nouns. While most nouns can only relate to formal or "grammatical" gender there are some nouns that can in addition relate to "semantic" gender, above all *epicene* nouns, that is to say, nouns that denote individuals of both sexes (also called *hybrid* nouns). The most widely discussed such noun is probably Russian *vrač* 'doctor', which is formally masculine but can be referred to by either *ona* 'she' (in case the doctor is a female) or *on* 'he' (Corbett 1991, 2006, 2014, Matushansky 2013, Petsetsky 2013, inter alia). Another much discussed such noun is Brazilian Portuguese feminine *vítima* 'victim' (Modesto 2010, Rodriques & Hornstein 2013). A few Icelandic nouns of this sort are listed in (20) (see also Thráinsson 2007:517–518, Þórhallsdóttir 2014).

(20) a. M: *læknir* 'doctor', *ráðherra* 'minister', *krakki* 'kid'
      b. F: *lögga* 'police officer', *hetja* 'hero', *manneskja* 'human being'
      c. NT: *fórnarlamb* 'victim', *illmenni* 'villain', *sjéní* 'genius', *barn* 'child'

Nouns of this sort typically denote naturally or at least potentially "sex-differentiated individuals" (like 'doctor', 'minister', 'victim'). Less typically they can denote individuals that are "not naturally sex-differentiated" (like 'kid') or even individuals that are "unnaturally gendered", like German neuter *Mädchen* 'girl' and Icelandic masculine *kvenmaður* 'woman'.[13]

As for Icelandic, it has long been standard and usually preferred to refer to epicene/hybrid nouns by "grammatical" gender. However, many nouns of this sort can alternatively be referred to "semantically" (and this tendency seems to be gaining ground, cf. Þórhallsdóttir 2014, Kjartansson 2015). This is illustrated for *lögga*, *ráðherra*, *kvenmaður*, *fórnarlamb* in (21); the boldfaced morphemes are gendered suffixed definite articles in the nominative singular (the nouns themselves are unmarked for gender, as previously noticed in relation to (2)).

			"Grammatical"	*"Semantic"*	*Inapplicable*
(21)	a.	Lögga**n**$_i$ …	Hún$_i$	Hann$_i$	*Það$_i$ …

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[13] A somewhat different type consists of "asexual" inanimate nouns that can be referred to with a gendered pronoun, like boats and ships in English and Swedish (*she* and *hon*).

	police-the.**F** …	she	he	it
b.	Ráðherra**nn**$_i$ …	Hann$_i$	Hún$_i$	*Það$_i$ …
	minister-the.**M** …	he	she	it
c.	Kvenmaður**inn**$_i$ …	Hann$_i$	Hún$_i$	*Það$_i$ …
	woman-the.**M**	he	she	it
d.	Fórnarlamb**ið**$_i$ …	Það$_i$	Hann$_i$ / Hún$_i$	---
	victim-the.**NT** …	it	he / she	

The acceptability of "semantic" coreference is affected by world knowledge. Thus, feminine *manneskja* 'human being' in (20b) cannot easily be referred to as *hann* 'he', presumably because the most common word meaning 'human being' is masculine *maður* 'man, human being' – so if one really presupposes a male it feels strange not to have used *maður.* Plural masculine *krakkarnir* 'the kids' may be referred to with either masculine *þeir* 'they' or neuter *þau* 'they' but hardly with feminine *þær* 'they' – in that case one would have been expected to use *stelpurnar* 'the girls', so using *krakkarnir* instead yields the presupposition that the kids were either boys only or of mixed genders. While masculine *ráðherrann* 'the minister' is commonly referred to as *hún* 'she' nowadays, this would have been unthinkable prior to the October Revolution in 1917 or even as late as when the first woman became a minister in Iceland in 1970.

"Semantic" coreference, thus, seems to be based on world knowledge (pragmatics) rather than on strictly syntactic or narrowly lexical information. This is coherent with the present edge linker approach, under which the gender of pronouns is open to valuation at the interfaces. Pronominal gender valuation is quite strict in the sense that *some* specific valuation is obligatory, but apart from that it only needs to meet the loose requirement that the value opted for "make sense". In a rich gender agreement language like Icelandic it seems to always "make sense" for a pronoun to copy the gender of an antecedent, as in e.g. (12), but, in case the gender can "make sex sense" at the semantic/pragmatic interface, gender copying is not the only available option; it is instead possible to opt for a valuation that is compatible with speaker's world knowledge and the presupposed world knowledge of the hearer. Referring to a female *ráðherra* 'minister.MASC' as *hún* 'she' meets these loose requirements nowadays while referring to either a male or a female minister with the neuter *það* 'it' does not, as seen in (21).

The notion of "making sense" is of course vague and difficult to define, but it seems that it involves some sort of feature compatibility. Copying the formal gender of an antecedent of course yields feature compatibility. But in the absence of such copying, compatibility in terms of HUMAN (or sometimes only ANIMATE) plays a central role. Masculine *hann* and feminine *hún* are compatible with HUMAN whereas neuter *það* is not (except when the neuter gender is copied from a HUMAN antecedent, such as *barn* 'child'). The feature HUMAN, in turn, seems to at least partly derive from thematic structure, as

suggested by the fact that it is present in impersonal null-subject constructions ("then was danced [by Ø_HUMAN(S)]", "here [Ø_HUMAN(S)] may not sing", etc.). See Sigurðsson & Egerland 2009.

The present understanding bears some resemblance to the accidental coreference approach in those cases where opting for sex semantics instead of formal gender copying can "make sense". The same applies in the case of deictic reference, as in "He must be happy", where "he" is previously unknown and unmentioned but given in some speech act situation (cf. Lasnik 1976:2). However, even in such cases the denotation of the pronoun is by no means accidental, or else it could just as well have been used to refer to 'the summer' or 'the idea' or whatever. The pronoun *he* represents the HUMAN feature plus a bundle of speech event feature values (roughly $-\Lambda_A$ ("not speaker"), $-\Lambda_P$ ("not hearer") +Top(ic), see Sigurðsson 2011a, 2014b) that are inherent to the linguistic speech event context, hence anything but accidental.

4 On predicate agreement

In this section I will discuss primary predicate agreement, as in (12) and many of the other examples above. My purpose is not to develop a complete account of nominal concord or agreement – that is a big issue with much cross-linguistic variation so discussing it in detail would take us too far from our present focus on gender.[14] My goal is more modest, although not trivial or uncontroversial, namely to provide evidence that morphological predicate agreement (of the Icelandic type) involves a top>down feature copying in PF, distinct from (albeit ultimately related to) narrowly syntactic down>top structure building (Agree + Merge).[15] Given this PF approach to overt nominal agreement, it is understandable that pronouns, with a clause-external gender source, can trigger predicate gender agreement: It happens in PF, after the pronoun has been assigned the gender of its clause-external antecedent.

For convenience I repeat (12) here as (22a–b).

(22) a.   Mynd**in**_i   er   skemmtileg/*skemmtileg**ur**/*skemmtileg**t**.
          movie-the.F is   fun.F/*M/*N
     b.   **Hún**_j/*hann_j/*það_j   var   **valin**/*valinn/*valið …

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[14] Thus, I will neither discuss the so-called agreement hierarchy nor agreement resolution in conjoined structures (see chapters 7 and 8 in Corbett 2006, and, on Icelandic, Friðjónsson 1991). These phenomena involve PF agreement strategies that vary considerably across languages and constructions. They are interesting in their own right, but I set them aside as they do not bear on the more general issues discussed here.

[15] Recall that I assume that deep PF has hierarchic structure (that transforms or dissolves into linear relations in shallower PF).

"she".F/*M/*N   was   chosen.F/*M/*N

'The movie is fun. It ("she") was chosen …'

Looking first at only (22a), it might seem unproblematic to account for the predicate agreement under a movement approach, where the feminine agreement of the adjective *skemmtileg* 'fun' boils down to regular local agreement prior to A-movement to Spec,TP (where it does not really matter whether one assumes a spec-head or a probe-goal approach to Agree; I assume the latter). This is simply sketched in (23).

(23) Mynd**in**   er   [skemmtileg [~~myndin~~]]

      movie-the.F is   fun.F   ~~movie-the.F~~

However, predicate agreement crucially differs from local DP-internal agreement or concord in one respect: it always yields the so-called "strong" adjectival form, here *skemmtileg*.[16] The "weak" form *skemmtileg**a*** is excluded, as seen in (24).

(24) *Mynd**in** er skemmtileg**a**.

In DP-internal agreement, on the other hand, both the strong and weak forms are available, depending (by and large) on definiteness. That is: a definite DP normally requires a weak form of an attributive adjective, whereas an indefinite one is normally only compatible with the strong form.[17] This is illustrated in (25).

(25) a.   skemmtileg**a**   mynd**in**

            fun.F.WEAK   movie-the.F

            'the fun movie'

      b.   skemmtileg   mynd

            fun.F.STRONG   movie-the.F

            'a fun movie'

Under an analysis where predicate agreement boils down to just local DP-internal agreement plus movement one would thus expect (24) to be grammatical and (23) to be ungrammatical, contrary to fact.

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[16] Thanks to Marit Julien for pointing this out to me.

[17] The examples in (25a–b) only illustrate the most central facts (and these are the only facts that matter for the argument being made). For a recent much more detailed and general discussion of the strong-weak distinction in Icelandic, see Pfaff 2014, 2015.

Regardless of how we analyze predicate agreement with a full DP subject, as in (22a), agreement in cases like (22b), with a pronominal subject, cannot be due to DP internal attributive agreement plus A-movement, given the null root analysis of pronouns in (14). For convenience, I repeat (22b) here.

(22) b. **Hún**$_j$/*hann$_j$/*það$_j$ var **valin**/*valinn/*valið …
        "she".F/*M/*N   was chosen.F/*M/*N
        'It was chosen …'

As we have seen, the FEM value of the pronoun is copied from the clause-external FEM antecedent *myndin* 'the movie' in (22a). That is: there is no gender information present in the clause at the initial state of its derivation, which is roughly as sketched in (26).

(26) [CP … be chosen- [DP … G$_\alpha$ … [NP … [N √Ø-n] …]]]]

The FEM agreement of *valin* 'chosen.F' cannot arise until at a later and a shallower derivational stage, when the FEM value has been copied into the pronominal DP from its clause external antecedent. Evidently, thus, overt agreement takes place in PF, as argued in a number of works that are (more or less) inspired by Distributed Morphology (Sigurðsson 2004, 2006, Bobaljik 2008, etc.).[18] Moreover, (22b) suggests that nominal agreement involves a top>down process and there is more evidence that suggests the same, as we will see. Nevertheless, the standard view (Chomsky 2001, etc.) that Agree is a syntactic relation that drives the computation in a down>top fashion for the purpose of interpretability seems to also be basically on the right track. If so, abstract Agree and morphological agreement are distinct phenomena.

I assume that abstract Agree is part of the basic computational system of UG (the initial internal (I-) language faculty) and that it is a prerequisite for successful down>top Merge. Morphological agreement, in turn, is an overt reflection of Agree/Merge, showing much variation across languages and constructions (see, e.g., Julien 2002:330ff, Corbett 2006, Baker 2008). It seems that any instance of Agree/Merge can in principle get reflected by overt agreement in PF (Sigurðsson 2006), even though languages (including Icelandic) are commonly PF silent about most instances of Agree/Merge in most constructions.

On this view, adopted here, abstract Agree is just as present and active in those varieties of English where it is grammatical to say *The girls is here* as in standard English, the difference being confined to PF agreement. In the same way, abstract Agree is just as active in

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[18] In the analysis of Sigurðsson & Holmberg 2008 (see also Sigurðsson 2004, 2006, etc.) verb agreement also takes place in PF, even though it has a number of properties that differ from those of nominal agreement or concord.

the underlying forms of the English examples in (27) as it is in the corresponding Icelandic ones in (2), repeated here as (28), with more detailed glosses.

(27) a. The chapters were all read newly written.
      b. The books were all read newly written.
      c. The (news)papers were all read newly written.

(28) a. **Kaflarnir**   voru   all**ir**   les**nir**   nýskrifa**ðir**.
          chapters-the   were   all   read   new-written
          M.PL.NOM   3PL   M.PL.NOM   M.PL.NOM   M.PL.NOM
          'The chapters were all read newly written.'
      b. **Bækurnar**   voru   all**ar**   les**nar**   nýskrifa**ðar**.
          books-the   were   all   read   new-written
          F.PL.NOM   3PL   F.PL.NOM   F.PL.NOM   F.PL.NOM
          'The books were all read newly written.'
      c. **Blöðin**   voru   **öll**   les**in**   nýskrif**uð**.
          papers-the   were   all   read   new-written
          NT.PL.NOM   3PL   NT.PL.NOM   NT.PL.NOM   NT.PL.NOM
          'The (news)papers were all read newly written.'

The English examples in (27) and the corresponding Icelandic ones in (28), then, are identical in underlying narrow syntax, the differences between the languages being confined to the externalization component (Berwick & Chomsky 2011, Mobbs 2015, Sigurðsson 2000 and subsequent work). If so, there are a priori two logically possible approaches to the underlying isomorphism of the languages and their simultaneous radical morphological differences.

- Approach 1: The adjectival gender/number/case information in the Icelandic (28) is present in the underlying syntax of both languages, being eliminated in the externalization process in English (cf. Chomsky 1995 and much related work).
- Approach 2: The gender/number/case information is absent in the underlying syntax of both languages being added in the externalization process in Icelandic, as opposed to English (Sigurðsson 2004, 2006).

The excessive adjectival morphology in the Icelandic (28) is entirely redundant: It yields no syntactic or semantic information whatsoever that is not there in English. I take it that this central fact supports Approach 2, over Approach 1. Notice also that under Approach 1 the logical assumption would be that all languages have all cross-linguistically potential morphological agreement features in their narrow syntax representation of all categories. That

does not seem likely or reasonable. Rather, in the course of the post-syntactic derivation, the interfaces add features to structures transferred from syntax.[19]

The vocabulary of Icelandic contains numerous morphologically specified items that are absent in a language like English. Any regular adjective, for instance, has 30 PF-distinct markers representing 144 inflectional possibilities or 'slots' (4 cases x 3 genders x 2 numbers x 3 degrees x 2 "strenghts"); in the basic "strong" positive (non-comparative) inflection the paradigmatic possibilities or 'slots' are 24 (4 cases x 3 genders x 2 numbers), expressed by 13 distinct endings or AGR markers: M.SG.NOM -*ur*, M.SG.ACC -*an*, F.SG.DAT -*ri*, NT.SG.NOM/ACC -*t*, F.PL.NOM/ACC -*ar*, and so on. The processes involved in this are (i) abstract individual feature valuation (for gender, number, case), (ii) feature clustering (gender+number+case), (iii) displaced copying of feature clusters (agreement), and (iv) externalization or lexicalization of the Agr clusters. These processes obey general principles, the 3rd factor in the sense of Chomsky 2005, but, with the exception of number valuation, they are arguably not narrowly syntactic, instead being part of post-syntactic Icelandic PF grammar, hence invisible to the semantic interface and not shared with, e.g., English grammar.[20]

Narrowing the focus to only gender again, it is evident that adjectives (as other gender inflected items) in Icelandic enter syntax without any gender specifications, acquiring such specifications by a gender copying process from an adjective-external source. For the sake of concreteness we may assume that any Icelandic adjective merges with an Agr matrix in PF with variables for gender, number and case, $[G_\alpha, Nr_\beta, C_\gamma]$, these variables being assigned specific values under agreement (copying) in the externalization process. The details of the mechanisms involved in this are immaterial here; what matters here is that overt gender agreement of the Icelandic sort is a PF process. Let me however repeat that the silent edge linkers that get interpreted as genders in gender languages are syntactic (see further section 6). It is only their overt interpretation or reflection in terms of gender that is a PF phenomenon. In the next section I will present additional evidence in favor of the present PF approach to gender assignment and gender agreement. This evidence comes from gender facts in PRO infinitives.

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[19] The semantic/pragmatic interface adds for instance inferences and implicatures (Gricean maxims, etc.) and the physical externalization component adds arbitrary forms: sound waves, facial expressions, sign shapes, etc. Displaced repetition of features and forms in the externalized form of language yields perceptible indicators of some of the structural derivation, but, on the view adopted here, it is not part of narrow syntax or internal language (as would seem evident if internal language is the or at least a language of thought, as argued in Berwick & Chomsky 2011).

[20] Obviously, language makes use of meaningless means to express meaning. See Sigurðsson 2012 for a detailed demonstration of the fact that morphological case has no one-to-one correlations to syntax and semantics (which is not the same as to say that there are no syntax-morphology correlations at all).

5 Gender in PRO infinitives

Given the general edge linker approach pursued here it does not come as a surprise that PRO seems to be like any other DP with respect to gender. That is: It has a silent gender feature that must be specified, and the specification is brought about by control, much as regular gender valuation of overt pronouns.[21] In other words, the mechanism in (16) applies in non-finite control contexts, much as in regular finite clauses. This is illustrated by gender agreement in obligatory control constructions, as in (29) and (30) (the infinitive marker *að* is in the C-domain in Icelandic, thus preceding PRO in Spec,TP or Spec,vP).

(29) Ég   reyndi   [að PRO   vera   **sterkur/sterk/*sterkt**].
     I   tried   to   be   strong.M.SG/F.SG/*NT.SG
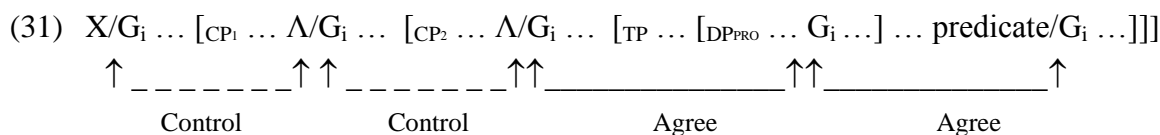   'I tried to be strong.'

(30) Við   reyndum   [að PRO   vera   **sterkir/sterkar/sterk**].
     we   tried   to   be   strong.M.PL/F.PL/NT.PL
     'We tried to be strong.'

In (29), as in (15) above, masculine singular *sterkur* is obligatory for a male speaker and feminine singular *sterk* is obligatory for a female speaker, whereas neuter singular agreement *sterkt* is unacceptable. In (30), in turn, the masculine plural form is obligatory for a male speaker who is exclusively including another male or other males in the reference of *við* and PRO, and parallel facts apply for the feminine gender and females, whereas the neuter form is used in the case of mixed genders.

     The DPs that get spelled out by the overtly non-gendered *ég* 'I' and *við* 'we' are gender valued on the basis of speech event properties, as sketched in (16). It seems–and I take that to be the case–that the gender information is also copied by the subordinate C/edge linkers under control and passed from there to the G_α feature of DP_{PRO} under Agree, the gender valued DP_{PRO} in turn triggering regular predicate agreement. This is sketched for (29) in (31), where G_i in X/G_i can be read as "the actual speaker's (conception of her or his) gender". The matrix subject DP, containing the overt pronoun *ég* 'I', enters an Agree relation with Λ/G_i in the matrix C domain, but, for simplicity, I do not show this in (31).[22]

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[21] The term "context scanning" in Sigurðsson 2011 is in my view better coined than "control", but, as the distinction is immaterial for my present purposes, I opt for "control" here.

[22] I am adopting Landau's (2008) approach to control here (with the exception that I assume that control and Agree are distinct relations; this difference is immaterial for my present purposes so I put it aside without discussion).

(31) X/G$_i$ … [$_{CP1}$ … Λ/G$_i$ … [$_{CP2}$ … Λ/G$_i$ … [$_{TP}$ … [$_{DPPRO}$ … G$_i$ …] … predicate/G$_i$ …]]]

    ↑ _ _ _ _ _ _ _ ↑ ↑ _ _ _ _ _ _ _ ↑↑_____↑↑_____↑

         Control   Control   Agree   Agree

Next, consider gender in non-obligatory control (NOC) contexts, like that in (32).

(32) a.   It is good [PRO to be **strong**].
      b.   [PRO to be **strong**] is good.

Examples of this sort commonly have an arbitrary or a generic reading,[23] in which case the infinitival predicate shows up in the (nominative) masculine singular in Icelandic (as compared to masculine plural in e.g. Italian), as shown in (33).

(33) a.   Það   er   gott   [að   PRO   vera   **sterkur**].
             it   is   good.NT.SG to   be   strong.M.SG
             'It is good (for one) to be strong.'
      b.   [Að   PRO   vera   **sterkur**]   er   gott.
             to   be   strong.M.SG is good.NT.SG
             'To be strong is good (for one).'

Thus, even in the absence of an overt antecedent, DP$_{PRO}$ must be gender specified and trigger gender agreement, understandably so if any Icelandic DP must somehow get gender specified.[24] When no other feature-assignment strategy is applicable, DP$_{PRO}$ is assigned masculine singular in Icelandic, the same feature values as impersonal *maður* 'one'. Default adjectival agreement is neuter singular in Icelandic (as in *gott* in (33)), suggesting that active (rather than default) feature valuation is involved in the agreement of *sterkur* in (33). I assume that the mechanism sketched in (31) applies here too, the antecedent X/G here being silent *maður* 'one' ("it is good (for one$_i$) [PRO$_i$ to be strong$_i$]").

    In structures with specific matrix tense (past tense, etc.), examples of this sort have specific (non-arbitrary) readings. This is illustrated in (34).

(34) Þá   var   gott   [að PRO vera svona **sterkur/sterk/*sterkt**].
      then was good.NT.SG to   be so   strong.M.SG/F.SG/*NT.SG
      'Then it was good (for me) to be so strong.'

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[23] On the distinction and relation between arbitrary and generic readings see e.g. Egerland 2003a, 2003b, Sigurðsson & Egerland 2009, and the references there.

[24] Notice that the feature valuation of the infinitival predicate (*sterkur*) is distinct from that of the matrix predicate (*gott*).

The prominent readings of examples of this sort are speaker-inclusive and non-speaker-exclusive readings: 'for me, a male, it was good to be strong at that time' vs. 'for me, a female, it was good to be strong at that time'.

Parallel facts are illustrated for the plural in (35).

(35) Þá   var   gott   [að PRO vera svona **sterkir/sterkar/sterk**].
then was good.NT.SG to   be   so   strong.M.PL/F.PL/NT.PL
'Then it was good (for us/them, etc.) to be so strong.'

The facts here are largely parallel to the facts in obligatory control contexts like (30). That is: The masculine plural *sterkir* exclusively refers to males, the feminine *sterkar* to females, and the neuter form is used in the case of mixed genders. As in (34), specific speaker-inclusive readings are the prevailing ones.

Consider, for example, (34) with the feminine form *sterk* and the reading 'for me, a female, it was good to be so strong at that time'. This reading shows that the infinitive has access to specified speaker gender, Λ_A/G_{FEM}. That is: The mechanism in (31) applies, seeing to it that PRO gets the G_{FEM} value from X/G_i via the C edges, the so valued PRO triggering regular predicate gender agreement. Examples of this sort thus actually involve obligatory control, a commonly unnoticed fact in the control debate (see Landau 2013 and the references there).

Examples like (34) and (35) can involve multiple PRO structures, as in (the relatively simple) (36); the boldfaced participles are F.SG.NOM.

(36) Þá   var   gott [að PRO vera **talin**   [PRO vera svona **sterk**]].
then was good to   be   believed   be   so   strong
'Then it was good (for me, a female) to be believed to be so strong.'

It is presumably technically possible to derive these facts under a movement analysis, either the Movement Theory of Control (MTC) in Hornstein 1999 and related work or Kayne's (2002) antecedent movement approach to coreference. Under such approaches the gender specified antecedent, X/G_i in (31), would be generated within the most deeply embedded predicate and moved from there to the superordinate predicate(s) and presumably to the highest infinitival Spec,TP. However, analyses along these lines require a general "accidental coreference" approach, which does not seem to be reasonable, as we have seen, and which is in any case rejected by Kayne 2002. As for examples like (34)–(36), in particular, it is not an accident or a coincident that the reading of PRO is obligatorily gender specific and prominently speaker inclusive. In addition, movement approaches are uneconomical. Icelandic PRO has 24 (4x2x3) specifications for case, number, and gender (see Thráinsson

2007, Sigurðsson 2008 and the references there on case-marked PRO). These combinations all come for free from the semantic/syntactic context of PRO.

Gender suggests that Icelandic nominal agreement involves top>down directionality in PF. The same is independently suggested by case agreement. Consider (37), where the infinitival predicate may either show up in the nominative or the accusative under case agreement with the accusative controller of PRO, *hana* (all other forms are impossible, including F.SG.DAT *sterkri* and F.SG.GEN *sterkrar*).

(37) a. Við báðum hana   [að PRO vera **sterk**].
          we   asked   her.ACC   to   be   strong.F.SG.NOM
          'We asked her to be strong.'
     b. Við báðum hana   [að PRO vera **sterka**].
          we   asked   her.ACC   to   be   strong.F.SG.ACC
          'We asked her to be strong.'

The predicative case marking in both instances is purely formal, with no semantic effects or correlates. While the nominative *sterk* in (37a) is simply the unmarked nominative, generally available in Icelandic non-quirky PRO infinitives, the accusative *sterka* in (37b) is assigned or transmitted under top>down case agreement in PF, out of sight for syntax; notice, in particular, that the infinitive contains no source or assigner of accusative case.[25]

6 Concluding remarks

This paper presents arguments and evidence that gender is not part of Universal Grammar or narrow syntax, instead being part of the externalization component ("PF") of individual gender languages. Nevertheless, gender reflects a syntactic relation between a DP phase and its context: Any phase contains a set of edge linkers that relate the phase to its context (structurally higher neighboring phases and the speech act context). As other edge linkers the gender edge linker is itself silent by necessity, an abstract identity index, but it is assigned a gender value in the externalization component of gender languages, subsequently triggering displaced gender agreement. The reason, in turn, why edge linkers are themselves "individually" silent is that they do not correspond to individual items, instead relating or linking elements of distinct domains or phases. Thus, for instance, the time or tense of speech, T_S, is one of the C/edge linkers, entering into a relation with the event time of a predicate, and

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[25] Similar patterns, involving purely formal top>down morphological markings, without any semantic import, are attested for case in ECM structures and for tense in Tense Agreement (Sequence of Tenses) constructions, as most recently argued in Sigurðsson 2015 (see also, e.g., Sigurðsson 1989, 2006 and Thráinsson 1979, 2007).

this relation may be spelled out by a tense affix like English *-ed* or *-s*, but T_S itself is not independently lexicalized as, say, a clause-initial *now* (Sigurðsson 2014b:178, 2015). Similarly, the "speaker" and "hearer" C/edge linkers, Λ_A and Λ_P, relate clause-internal person and number categories to the CP context, without being lexicalized themselves.[26]

This paper contributes to the ongoing discussion of the "edge mystery":[27] Phenomena that relate to EPP (the Extended Projection Principle) and, in a more recent terminology, the Edge Feature (see Rizzi 1997, Cinque 1999, Holmberg 2000, Chomsky 2001, 2008, and much related work). Phase heads, like D, C, v, are "cover terms for a richer array of functional categories" (Chomsky 2001:43, n. 8), and it is evident that this array is commonly not spelled out or only very meagerly so. The C/edge of a regular declarative main clause in English ("Mary left") is thus completely silent, given the standard assumption that the subject is situated lower than C. The idea that the left edge of any phase contains an array of edge linkers that are themselves silent by necessity thus accords well with the general picture of the phase edge that has been emerging in recent minimalist research (cf. the inbuilt Spec,Phase silence in Kayne 2006). However, edge linkers may have spelled out albeit displaced phase-internal correlates or markers, such as overt gender markers in gender languages or overt tense markers in languages with tense morphology. It seems reasonable to assume that individual edge linkers are present and active in narrow syntax even in languages and constructions where they do not have any spelled-out correlates. The particular edge linker that is spelled out as gender thus seems to be an abstract identity index, partaking in referential relations in genderless languages as well as in gender languages.

If this is on the right track the correlation between internal and external language is more indirect and intricate than often assumed. Much work awaits linguistics, identifying the individual features in the rich array of edge linkers in different types of phases. This is not an easy task if edge linkers are silent themselves by necessity, but neither is the exploration of "dark matter" in any other field of inquiry.

References

Åkerblom, Sandy. 2012. Semantikens roll för svenskans genussystem ['The role of semantics for the Swedish gender system']. Master's Thesis. SOL, Lund University. http://www.lu.se/lup/publication/2797399

Baker, Mark. 2008. *The syntax of agreement and concord*. Cambridge: Cambridge University Press.

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[26] There are many and recurring claims to the opposite in the literature. Sigurðsson (2014b) argues that any such claim is bound to be on a wrong track.

[27] Cf. Lasnik (2003:1): "EPP has been … a pervasive mystery since it was first formulated by Chomsky (1981)".

Berwick, Robert C. & Noam Chomsky. 2011. The biolinguistic program: The current state of its development. In *The Biolinguistic Enterprise: New Perspectives on the Evolution and Nature of the Human Language Faculty*, ed. by Anna Maria Di Sciullo and Cedric Boeckx, 19–41. Oxford: Oxford University Press.

Bobaljik, Jonathan. 2008. Where's Phi? Agreement as a postsyntactic operation. In *Phi-Theory: Phi features across interfaces and modules*, ed. by Daniel Harbour, David Adger, and Susana Béjar, 295-328. Oxford: Oxford University Press.

Chomsky, Noam. 1965. *Aspects of the Theory of Syntax*. Cambridge, MA: MIT Press.

Chomsky, Noam. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.

Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.

Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A Life in Language*, ed. by Michael Kenstowicz, 1–52. Cambridge, MA: The MIT Press.

Chomsky, Noam. 2005. Three factors in language design. *Linguistic Inquiry* 36:1–22.

Chomsky, Noam. 2008. On Phases. In *Foundational Issues in Linguistic Theory: Essays in Honor of Jean-Roger Vergnaud*. Ed. by Robert Freidin, Carlos P. Otero & Maria Luisa Zubizarreta, 133–166. Cambridge, MA: MIT Press.

Cinque, Guglielmo. 1999. *Adverbs and Functional Heads: A Cross-Linguistic Perspective*. Oxford: Oxford University Press.

Corbett, Greville G. 1991. *Gender*. Cambridge: Cambridge University Press.

Corbett, Greville. 2006. *Agreement*. Cambridge: Cambridge University Press.

Corbett, Greville G. 2013a. Number of Genders. In *The World Atlas of Language Structures Online*, ed. by Matthew S. Dryer & Martin Haspelmath. Leipzig: Max Planck Institute for Evolutionary Anthropology.

Corbett, Greville G. 2013b. Sex-based and Non-sex-based Gender Systems In *The World Atlas of Language Structures Online*, ed. by Matthew S. Dryer & Martin Haspelmath. Leipzig: Max Planck Institute for Evolutionary Anthropology.

Corbett, Greville G. 2014. Hybrid nouns and their complexity. Ms., University of Surrey.

Egerland, Verner. 2003a. Impersonal *man* and aspect in Swedish. *Venice Working Papers in Linguistics.*

Egerland, Verner. 2003b. Impersonal pronouns in Scandinavian and Romance. *Working Papers in Scandinavian Syntax* 71:75–102.

Elbourne, Paul D. 2005. *Situations and individuals*. Cambridge, MA: MIT Press.

Evans, Gareth. 1980. Pronouns. *Linguistic Inquiry* 11:337–362.

Friðjónsson, Jón. 1991. Beygingarsamræmi með samsettu frumlagi. [Agreement with a complex subject.] *Íslenskt mál og almenn málfræði* 12–13, 79–103.

Harbour, Daniel, David Adger & Susana Béjar (eds). 2008. *Phi-Theory: Phi Features across Interfaces and Modules*. Oxford: Oxford University Press.

Holmberg, Anders. 2000. Scandinavian Stylistic Fronting: how any category can become an expletive. *Linguistic Inquiry* 31:445–483.

Hornstein, Norbert. 1999. Movement and control. *Linguistic Inquiry* 30:69–96.

Josefsson, Gunlög. 2014. Pancake sentences and the semanticization of formal gender in Mainland Scandinavian. *Language Sciences* 43:62–76.

Julien, Marit. 2002. *Syntactic Heads and Word Formation: A Study of Verbal Inflection*. Oxford: Oxdord University Press.

Kayne, Richard S. 2002. Pronouns and their antecedents. In *Derivation and Explanation in the Minimalist Program*, ed. by Samuel David Epstein and T. Daniel Seely, 133–166. Oxford: Blackwell Publishing.

Kayne, Richard S. 2006. On Parameters and on principles of pronunciation. In *Organizing Grammar: Linguistic Studies in Honor of Henk van Riemsdijk*, ed. by Hans Broekhuis, Norbert Corver, Riny Huybregts, Ursula Kleinhenz & Jan Koster, 289–299. Berlin: Mouton de Gruyter.

Kjartansson, Helgi Skúli. 2015. Útrýmum stofnanakarlkyni! [Let us exterminate institutional masculine gender!]. Paper presented at the 15th Rask Conference in Reykjavik, January 2015.

Kratzer, Angelika. 1998. More structural analogies between pronouns and tenses. In *Proceedings of Semantics and Linguistic Theory (SALT) VIII*, ed. by Devon Strolovitch and Aaron Lawson, 92–109. Ithaca, NY: Cornell University, CLC Publications.

Kratzer, Angelika. 2009. Making a pronoun: fake indexicals as windows into the properties of pronouns. *Linguistic Inquiry* 40:187–237.

Landau, Idan. 2008. Two routes of control: Evidence from case transmission in Russian. *Natural Language and Linguistic Theory* 26:877–924.

Landau, Idan. 2013. *Control in Generative Grammar: A Research Companion*. Cambridge: Cambridge University Press.

Lasnik, Howard. 1976. Remarks on coreference. *Linguistic Analysis* 2:1–22.

Lasnik, Howard. 2003. On the Extended Projection Principle. *Studies in Modern Grammar* 31:1–23.

Matushansky, Ora. 2013. Gender confusion. In *Diagnosing Syntax*, ed. by Lisa Lai-Shen Cheng & Norbert Corver, 271–294. Oxford: Oxford University Press.

Mobbs, Ian. 2015. Minimalism and the Design of the Language Faculty. Doctoral dissertation, University of Cambridge.

Modesto, Marcello. 2010. What Brazilian Portuguese says about control: Remarks on Boeckx & Hornstein. *Syntax* 13:78–96.

Petsetsky, David. 2013. *Russian Case Morphology and the Syntactic Categories*. Cambridge, MA: MIT Press.

Pfaff, Alexander. 2014. Inside and outside–Before and after: Weak and strong adjectives in Icelandic. In *Adjectives in Germanic and Romance*, ed. by Petra Sleeman, Freek Van de Velde & Harry Perridon, 217–244. Amsterdam: John Benjamins**.**

Pfaff, Alexander**.** 2015. Adjectival and Genitival Modification in Definite Noun Phrases in Icelandic. Doctoral dissertation, University of Tromsø.

Reinhart, Tanya. 1983. Coreference and bound anaphora: Restatement of the anaphora questions. *Linguistics and Philosophy* 6:47–88.

Rodrigues, Cilene & Norbert Hornstein. 2013. Epicene agreement and inflected infinitives: When the data is "under control": A Reply to Modesto (2010). *Syntax* 16:292–309.

Siewierska, Anna. 2004. *Person*. Cambridge: Cambridge University Press.

Sigurðsson, Halldór Ármann. 1989. *Verbal Syntax and Case in Icelandic*. Doctoral dissertation, University of Lund. [Republished 1992 in Reykjavík: Institute of Linguistics].

Sigurðsson, Halldór Ármann. 2000. The locus of case and agreement. *Working Papers in Scandinavian Syntax* 65:65–108.

Sigurðsson, Halldór Ármann. 2004. Agree and agreement: evidence from Germanic. In *Focus on Germanic Typology*, ed. by Werner Abraham, 61–103. Berlin: Akademie Verlag.

Sigurðsson, Halldór Ármann. 2006. Agree in syntax, agreement in signs. In *Agreement Systems*, ed. by Cedric Boeckx, 201–237. Amsterdam: John Benjamins.

Sigurðsson, Halldór Ármann. 2008. The case of PRO. *Natural Language and Linguistic Theory* 26:403–450.

Sigurðsson, Halldór Ármann. 2011a. Conditions on argument drop. *Linguistic Inquiry* 42:267–304.

Sigurðsson, Halldór Ármann. 2011b. Uniformity and diversity: A minimalist perspective. *Linguistic Variation* 11:189–222.

Sigurðsson, Halldór Ármann. 2014a. About pronouns. *Working Papers in Scandinavian Syntax* 92:66–98.

Sigurðsson, Halldór Ármann. 2014b. Context-linked Grammar. *Language Sciences* 43:175–188.

Sigurðsson, Halldór Ármann & Verner Egerland. 2009. Impersonal null-subjects in Icelandic and elsewhere. *Studia Linguistica* 63:158–185.

Sigurðsson, Halldór Ármann & Anders Holmberg. 2008. Icelandic Dative Intervention: Person and Number are separate probes. In *Agreement Restrictions*, ed. by Roberta D'Alessandro, Susann Fischer & Gunnar Hrafn Hrafnbjargarson, 251–279. Berlin: Mouton de Gruyter.

Teleman, Ulf, Staffan Hellberg & Erik Andersson. 1999. *Svenska Akademiens grammatik*. 1-4. Stockolm: Svenska Akademien.

Þórhallsdóttir. Guðrún. 2014. Gender agreement in 19th- and 20th-century Icelandic. Ms., University of Iceland.

Thráinsson, Höskuldur. 1979. *On Complementation in Icelandic*. New York: Garland.

Thráinsson, Höskuldur. 2007. *The Syntax of Icelandic*. Cambridge: Cambridge University Press.

Wechsler, Stephen & Larisa Zlatić 2003. *The Many Faces of Agreement*. Stanford CA: CSLI Publications.

Wood, Jim. 2015. *Icelandic Morphosyntax and Argument Structure*. Dordrecht: Springer.

Zwart, Jan-Wouter. 2002. Issues relating to a derivational theory of binding. In Samuel David Epstein and T. Daniel Seely (eds.). *Derivation and Explanation in the Minimalist Program*, 269–304. Oxford: Blackwell Publishing.