Agree in syntax, agreement in signs[*]

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Abstract

This paper explores the idea that abstract Agree is a precondition on Merge and an integrated part of it. That is, an element F merges with the structure X only if the relation of Agree holds between the two (the Agree Condition on Merge). The relation of Agree holds between F and X iff X contains an active feature f_x that matches F. Move is forced by an inactive intervener $_{\downarrow x}$ between F and f_x, which, if not crossed by f_x, would block matching, F $\leftrightarrow$ f_x. It follows that Move and Merge are fundamentally different, Move tucking in, as a 'rescuing operation' in an already existing structure, whereas Merge adds information to structure, thereby expanding it.

Whenever Merge applies, the possibility of agreement arises, i.e. languages make parametric (PF) choices whether or not to signal each instance of Merge morphologically, that is, agreement is in effect a 'sign of compositionality'. The various agreement phenomena of Icelandic illustrate that agreement involves feature copying processes that take place exclusively in PF. Thus, morphological agreement is quite distinct from (albeit preconditioned by) abstract syntactic Agree. In addition, the Icelandic facts discussed suggest that also 'head movement' is confined to PF.

If this is on the right track, PF is a multilayered and a highly complex system, producing strings that can be radically different from underlying syntactic structures.

1. Minimal feature syntax: a general outline

If the syntactic computation proceeds in a single cycle (Chomsky 2000, 2001, 2004, 2005a, 2005b), it must be unterstandable or interpretable to both the 'standard' interfaces, here referred to as *semantic form* and *perceptible form*, SF and PF, for short.[1] This is a very constraining understanding of syntax, as it follows that syntax cannot contain or produce any information that is visible but uninterpretable to the interfaces. The result is seemingly paradoxical: An element like the first person plural *we* has a phonological shape, [wi:], that is illegible to the conceptual interface (SF), i.e. has no meaning or conceptual form. Conversely, it has semantic content, roughly 'first person, plural, ...' that is not phonetically transcribable (as [+labial], [+voiced], etc.), i.e. has no perceptible form. Much the same applies to elements that are not as purely functional, for instance an item like *horse*, with semantic features like COUNTABLE, ANIMATE, etc., as well as phonological features. Let us refer to this problem as the *Interpretability Puzzle*.

Chomsky's solution to this puzzle is basically to have uninterpretable features removed or eliminated prior to the operation *transfer*, that hands the derivation over to the interfaces. However, this does not solve another and an even more deeply rooted puzzle, the *Complexity Puzzle*:

(1)   A 'lexical item' is a complex set of perceptible features ([+labial], etc.) and semantic features ([+Plural], etc.). Since these features are mutually incomprehensible and evidently not compatible in any other way, it is a puzzle that they should form a minimal unit together.

In other words, even on Chomsky's feature elimination approach, the 'complexity problem' remains, not at the interpretative interfaces but in 'the lexicon'. It is rather obvious that 'lexical items', like *we* and *horse*, are not primitives in any sense but complex structures, and it should also be an unquestioned goal of linguistics to develop some understanding of how these complex structures come into being. However, the problem has not yet received any standard treatment within generative linguistics.[2]

The idea that the *sign lexicon* somehow is at an intersection between the interfaces, and is thus equally accessible to both of them, goes back to the classical T-model and was further developed in the earliest minimalist works (Chomsky 1991, 1993; for a clear presentation see Thráinsson 1996). I shall assume a different view here, where the sign lexicon is entirely on the PF side. On this view, the (narrowly syntactic) computation has access to only a *syntactic lexicon*, that is to say, a list of lexical roots and syntactic features (and feature built structures), that have no audible or visible content. The computation produces a *single* string of *syntactic* information, $\mathbf{SI} = \{si_n, si_{n+1}, si_{n+2}, ...\}$, sent to both the interfaces. The interfaces, in turn, interptret SI in terms of different systems, that is, they translate or transform SI and its elements into different 'languages' or codes. For simplicity, I shall here use the notions SF and PF to refer to not only the interfaces themselves (the translating 'machines' or systems) but also to the different codes or 'languages' used by them (broad PF and broad SF, as it were).

Chomsky (see 1995: 277) conceives of semantic or conceptual features, such as HUMAN, as directly interpretable by the conceptual interface, whereas formal features such as [+plural] are either interpretable or uninterpretable, depending on whether they are agreeing or not. Thus, in a clause like (2)

(2)   There were professors seen dancing in the woods.

the plural feature of *professors* is interpretable without further ado, whereas the plural feature of the verb *were* is an agreeing feature. Hence, the verbal plural is not interpretable to the conceptual interface and must be 'deleted' under Agree prior to SF interpretation.

It is obvious that we normally do not interpret the verbal plural in (2) such that there were many distinct events of dancing in the woods.[3] That is, the clause gets the same interpretation as the clause *There <u>was</u> professors seen dancing in the woods*, in those varieties of English that allow the latter. Two understandings of this fact come into question. First, the verbal plural might be present in syntax but eliminated from the message sent to SF; this, as already stated, is the possiblity explored by Chomsky in his recent works. Alternatively, we might assume that the verb has no plural feature in syntax, its plural form arising through an agreement or 'assimilation' process in PF (an initially plausible assumption in view of the fact that assimil<u>at</u>ion processes are pervasively evidenced in at least 'shallow' PF). Call this the *PF approach to agreement*. I argued for this PF approach at length in "Agree and agreement: evidence from Germanic" (Sigurðsson 2004a, henceforth **A&a**), and I shall further pursue it here. On this approach, syntax has no access to inflected forms like *were*, that is, full-fledged morphophonological forms are formed on the PF side, hence nonexistent elsewhere in language. Also, of course, we must distinguish between morphophonological agreement and the underlying syntactic relation Agree (as already argued in A&a).

If this is on the right track, we need to assume that the interfaces add language- or culture-specific features that are not parts of the syntactic computation or narrow syntax, NS. It is uncontroversial that PF does, and it also seems to be the case that SF gets enriched by for instance general logical 'features' (implications, etc.) as well as more specific pragmatic features that never enter narrow syntax (see Chomsky 2004: 124-125, n. 12). The question of

which of the elements and substructures of the interfaces are universal and which are not is an empirical question that can only be answered by extensive comparative and analytic research. My goal here is modest, though. I only need to develop some minimal understanding of the organization of the interfaces in order to be able to address the question of how Agree and agreement work. In doing so, I will be making the reasonable conjecture that elements that get an interpretation (or a legible form) at *both* interfaces are present in NS. Thus, the pronoun *we* gets both a PF interpretation, [wi:], and an SF interpretation ('first person, plural, ...'), suggesting that it is present at and computed in NS.[4]

In Chomsky's elimination approach, the plural feature of *were* in (2) is present in the message sent to PF, but absent from the message sent to SF. In the present approach, in contrast, it is absent from both, that is, exactly the same message, SI, is sent to both interfaces (where it gets entirely different interpretations or realizations, of course). Common to both approaches is that the feature is absent from the SF message. It should be noticed, however, that simply granting that agreeing features are absent from SF does not resolve the *interpretability issue*; it is an extremely complex issue. As I have argued elsewhere (e.g. in 2004b), even morphologically non-agreeing or 'basic' formal features like Person and Tense are not inherently interpretable, but must instead be *relatively* interpreted (in relation to the basic speech situation or event; that is, these fetures 'agree' or 'disagree' semantically with the features of the speech event). Thus, we can distinguish between at least two types of features of the syntactic lexicon:

(3)　a.　*Inherently interpretable features*, such as THING, MATERIAL, HUMAN, and FEMALE. The interpretation of features of this sort seems to be *constant*, independent of other features, that is, although these features have to combine with other features of the syntactic lexicon and hence enter the syntactic computation they are themselves not computed but directly interpretable at SF.

　　　b.　*Relatively interpretable features*, such as PERSON, TENSE, LOCATION, and DIRECTION. These features are not constants but *variables*, that is, they must be interpreted or valued in relation to other features, most importantly the features of the speech event.[5]

In contrast to feature constants, *feature variables* are thus valued or computed in narrow syntax. For instance, the value of 'first person' depends on (roughly) who is the speaker and the value or 'reference' of 'present tense' depends on the moment of speech (see further Sigurðsson 2004b).

PF is evidently layered, that is, it has several sub-interfaces, as sketched in (4), where the arrow reads as 'transforms into' (or 'is interpreted by'):

(4)　SI_n　→　PF_1　→　PF_2　→　PF_3　→　...

For concreteness and simplicity, I assume that the PF sub-interfaces correspond, roughly, to traditional sign formation ('word formation'), morphophonology, phonology and phonetics:

(5)　SI_n　→　Sign formation　→　Morphophonology　→　Phonology　→　Phonetics

Possibly, each of these sub-interfaces splits further, but this rough sketch is sufficiently accurate for our limited purposes.

At all the PF interfaces, there are processes that take place for mainly or exclusively *interface internal reasons,* that is, these processes are not or only indirectly motivated in

syntax. Most pervasively, *merge* and *assimilation* are general properties of all the PF interfaces. Concentrating on only assimilation, for the moment, the phonetic level or interface has assimilation processes like co-articulation, and it is also a truism that the phonological level has assimilation processes. I will here argue that the morphophonological level has processes that are basically of the same general brand, namely agreement.

Consider the derivation of a simple structure like (6a), starting out roughly as the simplified numeration in (6b):

(6)　a.　　... the man called ...
　　　b.　　$\{..., T_y, \phi_x, \text{ROOT}/77, \theta_{\text{ROOT}/77\text{-ER}}, \text{ROOT}/99, \text{Def}, ...\}$

The numbering of the roots is entirely arbitrary here (but it is perhaps non-arbitrary in reality, that is, in the real syntactic lexicon). ROOT/77 and ROOT/99, will eventually be interpreted as 'the act of calling' and 'man' in SF, and roughly as [k^hɔːld] and [mæn] in PF. For convenience, we may use the notation in (7) instead of the one in (6b):

(7)　　$\{ ..., T_y, \phi_x, \text{CALL}, \theta_{\text{CALLER}}, \text{MAN}, \text{Def}, ...\}$

Syntax merges θ_{CALLER}, MAN, ϕ_x and Def in some order, yielding, roughly speaking, the argument 'definite calling third person singular man'. This argument, call it simply DEFINITE CALLING THIRD PERSON SINGULAR MAN, is consequently merged with CALL, the resulting structure is then merged with T_{PAST}, and we get the structure in (8):[6]

(8)　　... [T_{PAST} [CALL [DEFINITE CALLING THIRD PERSON SINGULAR MAN]]] ...

It is not really obvious that syntactic computation should proceed any further than this. If it were not to proceed any further, we would have to assume that all subesequent movements, such as verb raising and NP movement, are confined to PF, i.e. that they are strictly speaking non-syntactic and hence invisible at the conceptual interface. I will take the opposite view here, arguing that at least some movements take place for syntactic reasons and are thus visible (and interpretable) to both the major interfaces, SF and PF. In particular, I shall pursue the idea (formulated in Sigurðsson 2005a) that Move is a 'rescuing' operation, enabling matching that would otherwise be blocked. As we shall see, however, there are also some movements, such as verb raising, that take place in PF only, but such movements are driven by quite different 'needs' than is syntactic Move.

Assume this to be on the right track. If so, syntax (i.e., not merely PF) will eventually reverse (8), with (9) as a result:

(9)　　... [[DEF ... MAN] [CALL [T_{PAST}]]] ...

This, then, is the output of the computation, the Syntactic Information, SI, sent to both the major interfaces, subsequently being interpreted roughly as [ðə mæn k^hɔːld] vs. 'the man called'.[7]

Notice that the sign *called* is not a syntactic primitive on this approach. Rather, audible 'words' are formed in the sign lexicon on the PF side of language, evidently at the deepest PF interface, identified as the level or interface of Sign formation in (5) above. Thus, there is no syntactic difference between the examples in (10):

(10)　a.　　Regam.　　　　　　　　　　　　　　　　　　Latin

(I-)will-rule
'I will rule.'

b. I will rule. English

c. Jag kommer att styra. Swedish
I come to rule
'I will rule.'

d. Ég kem til með að stjórna. Icelandic[8]
I come towards with to rule
'I will rule.'

Rather, all these examples start out roughly as the numeration in (11) (θ_{RULER} and ϕ_x later on being interpreted as identical to the 'speaker'):

(11) $\{T_y, \phi_x, \text{RULE}, \theta_{RULER}, \ldots\}$

That is, the difference between the languages is not syntactic but *lexical*, where *lexical* means 'PF-lexical' or 'sign-lexical' (and not 'syntax-lexical').

2. Agree, Merge, matching, Move

In minimal feature syntax as sketched above, features are the only syntactic primitives. If so, there are no complex syntactic elements like, say, an Infl node or a T element with concomitant ϕ-features (whether or not interpretable).[9] Any application of Merge adds a single feature **F** to a feature or a feature built structure X, yielding F[X]; reapplication of Merge adds another single feature **G**, yielding G[FX], and so on.[10]

In the spirit of Chomsky's recent line of thinking (2000 and subsequent), I assume *Minimal Design*, aiming at a model of the language faculty that is minimal in the sense that it assumes only general properties (of biological and computational systems) and properties that are mandatory to satisfy the interface conditions. This is what Chomsky (2000, 2004: 106ff.) refers to as the 'strong minimalist thesis', SMT. It might be too strong, as I will discuss in a moment (and as pointed out in Chomsky 2004). However, aiming at Minimal Design is arguably the only way to proceed along a minimalistic line of reasoning. If so, every assumption that is neither given as a general property of complex systems nor forced by interface conditions needs empirical justification.

Chomsky (2004) explores the possibility that Move is a subcase of Merge, referring to it as *Internal Merge* and to Merge in the more traditional sense as *External Merge*. Adopting and developing the approach in A&a, I shall here explore another logical possibility of minimizing design, by subsuming Agree under Merge. Thus, I assume the *Agree Condition on Merge*, ACM, formulated roughly as follows in A&a:

(12) Two objects F and X may be merged only if the relation of Agree holds between them

Agree, then, is not an operation but a precondition on Merge. We may conceive of it as follows:[11]

(13) Agree holds between F and X, F the left-hand sister of X, iff X contains an active feature f_x, matching F

Agree is thus a selectional relationship, not a probe-goal relation. As Chomsky puts it (2001b: 6): "the limitations on Merge follow from selectional and other conditions that are independent."

Matching on the other hand, is a probe-goal relation: F has to be able to 'look' into X, that is, it searches or probes for the matching feature value f_x within X. Matching is thus an operation, quite distinct from the sisterhood relation of Merge and also from the Agree Condition on Merge. Probing and matching in turn are sensitive to minimality or intervention, an issue I shall return to. The result of Merge/Agree, on the other hand, is like a chemical bond, a combinatory unit with subunits that share some of their outer shell or 'edge' features (A&a).

Merge itself is an inevitable general property of any system that combines objects. Addition systems generally also apply at least some kind of a compatibility condition on addition, i.e. it is generally the case that only compatible elements can be merged, but the Agree Condition on Merge, ACM, is a more specific condition, so it deviates at least partly from 'mathematical Minimal Design'. However, it has counterparts in nature, for instance in chemical reactions (as pointed out in A&a), so it might in fact follow from 'biological Minimal Design'. I leave the issue open here, though.

Matching, in turn, is an 'afterwards' operation between the combined objects, which also is not a general property of addition, that is, matching is a clear case of deviation from 'mathematical Minimal Design'. However, *inbuilt future reliance* is a property of e.g. mammal vision and insect navigation (see Chomsky 2005a on 'rule-following'). Thus, it seems likely that something like matching, linking 'past' and 'future' in computational processes, is a general property of biological systems. If so, matching is not a deviation from Minimal Design but an essential part of it. In addition, there is linguistic evidence in favour of matching (partly discussed in sections 3.5 and 4).

It is disputable whether binary branching and structural hierarchy ('tree-structures' of some sort) follow from Minimal Design, but I shall adopt the standard view that they are Narrow Syntax properties. On the other hand, X'-theoretic notions such as 'head', 'complement', 'specifier', 'projection', etc. do not have any conceptual status in minimal feature syntax as pursued here (or in the minimalist program as developed by Chomsky 2004). Even the notion 'position' does not make any clear sense in this system (whereas one could make contentful use of the notion 'space'). In particular, a feature and its left edge space have no correlation with each other, that is, there is no matching correlation between the two, so-called 'Spec-head agreement' being a PF displaced reflection of Agree (A&a). Constituency, in the usual PF sense, is yet another notion that does not follow from Minimal Design (see further below).

As mentioned above, Chomsky (2004) argues that Move is really an instantiation of Merge, a step that leads to the reintroduction of covert movement (Chomsky 2004: 111):

> By definition, the operation TRANSFER … applies at the phase level. At this level, internal Merge can apply either before or after TRANSFER, hence before or after Spell-Out S-O. The former case yields overt movement, the latter case covert movement, with the displaced element spelled out in situ.

However, allowing both long distance probing/matching and covert movement is redundant and thus an undesirable deviation from Minimal Design. I shall here take the opposite turn, arguing in favour of doing entirely away with covert movement (as in Chomsky 2000, 2001).[12]

The leading idea I shall pursue here (developed already in Sigurðsson 2005a) is that Move is triggered by matching, under conditions to be explicated below. The standard

assumption has long been that an attracting probe attracts a category into its Spec position. However, as already pointed out, there are no projections and no fixed positions in the present approach, hence there can be no Spec positions for elements to move into. The alternative is to assume that Move is like (external) Merge in extending structure, in which case merging F to X would not involve insertion of F into an already existing Spec,X, but would instead lead to the extension of X, whereby a new 'Spec,X' or 'Adjunct,X' (containing F) would be created, as it were (see Chomsky 2004: 109). As far as I can see, however, this second approach defies a fundamental difference between Merge and Move. While Merge of F to the structure X adds information to X, this is not true of Move that applies internal to X (say, from the right tail of X to its left edge). This difference has a structural correlate, I propose, such that Merge extends structure, whereas Move always 'tucks in'. The structural difference may be illustrated as follows:

(14) a. Merge F to [XW]: $F + [XW]$ $\rightarrow$ $[\mathbf{F}XW]$
     b. Move F within [XWF]: $[XWF]$ $\rightarrow$ $[X\mathbf{F}W\cancel{F}]$

Given this understanding, we can develop an approach where Move indeed does not reduce to Merge but where it is nonetheless preconditioned by Merge. This can be implemented as follows:

Recall that Merge is preconditioned by Agree, that is, F can only merge to the structure X if X contains an active feature f_x, matching F. As a consequence of Merge, F must thus probe into X, in search of f_x. If it finds f_x at the left edge of X, Merge is successful without any further ado, that is, matching is local and Move does not take place. However, if f_x is more deeply embedded in X, two possibilities arise: MOVE or STAY.

Adopting the approach in Sigurðsson (2005a), I propose that F attracts f_x, i.e. that Move takes place, under the condition of INACTIVE INTERVENTION. That is to say: A probe F *checks* all elements in X that are potential hosts of its goal feature f, containing an *inactive* value $\boldsymbol{\mathsf{t}}_x$ of the searched feature, until it finds a *matching* one, containing the active value f_x, where probing immediately stops. If f_x is the only value of f in the Search Domain, movement need not take place (and cannot, except perhaps by pied piping), and a Long Distance Matching correlation arises (as in English subject interrogatives like *Who saw the movie?*, where *wh* in the C-domain probes for *who* but does not attract it). No covert movement takes place.

If, on the other hand, the searched structure contains an inactive f value $\boldsymbol{\mathsf{t}}_x$, then Move places f_x immediately to the left of the highest $\boldsymbol{\mathsf{t}}_x$ and its inactivating probes, tucking it in there for the purpose of successful matching, $F \leftrightarrow f_x$ (as in English non-subject interrogatives, like *What did he see?*, where the subject has an inactive *wh* feature).[13] Thus, Move differs from Merge in *not* extending structure. Rather, it takes *minimal steps*, tucking in or 'dropping' f_x as soon as possible, that is, in the first or the lowest 'position' or space where it is accessible for $F \leftrightarrow f_x$.

Syntactic constituency is simply and naturally defined as the outcome of any instantiation of Merge. On the other hand, the widely assumed descriptive notion of surface constituency, taken to figure prominently in ellipsis and movement processes, does not follow (cf. Kayne 1998b). Linguistics has not yet developed any true understanding of 'PF-constituency' nor of the notion of a 'PF-word' (see also Sigurðsson 2004b). As we shall see in sections 3.4 and 4, however, the formation of 'lexical signs' or 'PF-words' in at least some cases proceeds by way of roll-up 'head' movement in PF.

3. Agreement: the Icelandic case

Agreement (including DP internal concord) is an amazingly varied phenomenon, not only cross-linguistically but also language-internally. I shall here limit myself to discussing only Icelandic agreement phenomena.

Icelandic has three major types of agreement:[14]

(15) a.   Finite verb agreement
     b.   Predicate agreement (of adjectives, past participles, NPs to an extent)
     c.   Concord of DP internal nominals (articles, adjectives, etc.)

The agreeing features are:

(16) a.   Person (1, 2, 3) and Number (SG, PL) in finite verbs.
     b.   Number (SG, PL), Gender (M, F, N) and Case (N(om), A(cc), D(at), G(en)) in adjectival and past participial predicates, Case in NP predicates.
     c.   Number, Gender and Case in DP internal nominals in general; also Definiteness (DEF, INDEF) in DP internal adjectives, adjectival past participles, and ordinals (and, under certain rather constrained conditions, in the same elements when predicative).

In the following I give a descriptive overview of the basic facts of these agreement phenomena. Section 3.1 briefly describes finite verb agreement, predicate agreement is the subject of section 3.2, and section 3.3 describes DP internal concord. Section 3.4 contains a general discussion of the described facts, where it is argued that they remain unaccounted for unless we distinguish between syntactic Agree/matching and its various types of agreement manifestations, the latter involving feature copying in PF. This is further substantiated in section 4, where φ-feature matching and the Person Restriction on Icelandic finite verb agreement are discussed.

3.1 Finite verb agreement

Each of the agreement types in (15) has subtypes. Finite verb agreement is most varied, having five clearly distinct subtypes (Sigurðsson 1996, A&a). The most central and common one is plain *nominative subject-verb agreement*:[15]

(17) a.   <u>Við</u>   **tökum**   bókina.
            we.N   take.1PL   book-the
     b.   <u>Þið</u>   **takið**   bókina.
            you.N   take.2PL   book-the
     c.   <u>Við</u>   **höfum**   tekið   bókina.
            we.N   have.1PL   taken   book-the
     d.   <u>Þið</u>   **hafið**   tekið   bókina.
            you.N   have.2PL   taken   book-the

The number of person/number distinctions varies a bit, depending on the verb. The most common number is five in the indicative past and present and in the subjunctive past, four in the subjunctive present.[16] Notice that the active past participle, selected by the auxiliary *hafa* 'have', always shows up in a nonagreeing form, thererby differing from passive past participles (see further below).

In addition to plain subject-verb agreement, Icelandic has four types of *reverse finite verb agreement*, that is, agreement of the finite verb with a nominative to its right, internal to the predicate. We may refer to these types as (the well-known type of) *Late Subject Agreement*, LSA (with or without expletive *það* 'there, it'), *Nominative Object Agreement*, NOA, *Nominative ECM Agreement*, NEA,[17] and *Reverse Predicate Agreement*, RPA. These types are illustrated in (18), where the agreement controlling nominative is underlined:

(18) a.   LSA: 'maybe **have**.3PL come here <u>some linguists</u>.N'
     b.   LSA: 'there **have**.3PL maybe come here <u>some linguists</u>.N'
     c.   NOA: 'her.D **have**.3PL probably not liked <u>these comments</u>.N'
     d.   NEA: 'her.D **have**.3PL perhaps seemed [<u>they</u>.N be intelligent]'
     e.   RPA: 'then **have**.2PL it probably only been <u>you</u>.N.PL'

Icelandic examples:

(19) a.   Kannski **hafa**   komið hingað   <u>einhverjir málvísindamenn</u>.
           maybe   have.3PL come   here   some   linguists.N
           'Maybe some linguists have come here.'
     b.   Það **hafa**   kannski komið hingað   <u>einhverjir málvísindamenn</u>.
           there have.3PL maybe   come   here   some   linguists.N
           'Maybe there have some linguists come here.'
     c.   Henni **hafa**   sennilega ekki líkað   <u>þessar athugasemdir</u>.
           her.D have.3PL probably not liked   these   comments.N
           'She probably did not like these comments.'
     d.   Henni **hafa**   kannski virst   <u>þeir</u>   vera gáfaðir.
           her.D have.3PL perhaps seemed they.N   be   intelligent
           'They perhaps seemed intelligent to her.'
     e.   Þá **hafið**   það sennilega bara verið   <u>þið</u>.
           then have.2PL it   probably only been   you.N.PL
           'Then it has probably only been you.'

As seen, the agreement controller is a late subject (a 'logical subject') in (19a, b), an object in (19c), a subject of a nominative ECM infinitive in (19d) and a predicative NP in (19e).

In all types of finite verb agreement, the agreement controller must be in the *nominative* (the *Nominative Restriction*, cf. Sigurðsson 1996, 2003, A&a). Quirky subjects, such as the datives in (19b, c) never trigger overt agreement. That is, the finite verb shows up in the default 3SG in clauses with a quirky subject unless the clause contains a late nominative with which the verb may agree in number, as in (19). This is highlighted by numerous minimal pairs of the sort illustrated in (20), where there is a variation between not having and having a nominative argument, hence also between default vs. agreeing verb forms:[18]

(20) a.   Mér   var   sagt   frá   þessum atburðum.
           me.D   was.3SG said.N/A.N.PL from   these   events.D
           'I was told about these events.'
     b.   Mér   **voru**   sagðir   <u>þessir atburðir</u>.
           me.D   were.3PL said.N.M.PL   these   events.N.M.PL
           'I was told these events.'

I shall return to quirky constructions in section 4. As will be clear from the discussion there, quirky subjects do enter into syntactic matching correlations. Thus, the fact that they are

blocked from triggering (local) agreement should plausibly not be accounted for syntactically, but in terms of a PF constraint blocking one and the same element from entering into more than one PF visible feature sharing correlation (see Sigurðsson 2003: 261-262).

3.2 Predicate agreement

The canonical type of predicate agreement is simple subject-predicte agreement, here referred to as *primary predicate agreement*. The agreeing predicate is usually either an adjective or a past participle, as illustrated below:

(21) a.   Þeir   voru   líklega   **ríkir**.
           they.N.M.PL   were.3SG   probably   rich.N.M.PL
      b.   Þær   voru   líklega   **ríkar**.
           they.N.F.PL   were.3SG   probably   rich.N.F.PL

(22) a.   Þeir   voru   líklega   **skammaðir**.
           they.N.M.PL   were.3SG   probably   scolded.N.M.PL
      b.   Þær   voru   líklega   **skammaðar**.
           they.N.F.PL   were.3SG   probably   scolded.N.F.PL

Icelandic has gender distinctions in both singular and plural third person pronouns: *Hann/ hún/það* 'he/she/it' in the singular, and *þeir/þær/þau* 'they' M/F/N in the plural. These are used as indexicals to refer to inanimate as well as animate arguments in discourse. Thus *hann* and *þeir* may refer to e.g. *bíllinn* 'car.the' and *bílarnir* 'cars.the' and *hún* and *þær* may refer to e.g. *bókin* 'book.the' and *bækurnar* 'books.the' (but not vice versa, i.e. formal gender agreement must normally be respected, much like in e.g. German).

   Active past participles selected by *vera* 'be' and *verða* 'will be, become' show the same agreement properties as passive past participles, whereas they show up in a nonagreeing default form (homophonous with the N/A.N.SG form of the inflected past participle) when selected by *hafa* 'have'. All present participles end in the invariable - *(a)ndi*. The three participle types are compared in (23):

(23) a.   Hann var **orðinn** faðir.   /   Þeir voru **orðnir** feður.
           he   was become father   they were become fathers
                       N.M.SG   N.M.PL
           'He had become a father.'   'They had become fathers.'
      b.   Hann hafði *orðið* faðir.   /   Þeir höfðu *orðið*   feður.
           he   had   become father   they had   become fathers
           'He had become a father.'   'They had become fathers.'
      c.   Hann var *verðandi* faðir.   /   Þeir voru *verðandi* feður.[19]
           he   was becoming father   they were becoming fathers
           'He was a father to be.'   'They were fathers to be.'

As seen, both the *vera* 'be' + agreeing participle construction in (23a) and the *hafa* 'have' + nonagreeing participle construction in (23b) translate as the English perfect. However, the English perfect is ambiguous between two quite distinct aspectual readings of the Ielandic constructions (also seen in English *have gone* vs. *be gone*). The *vera*-construction has a stative/resultative ('adjectival') reading, whereas the *hafa*-construction has a

temporal/eventive reading ('verbal' or 'dynamic'). Thus, *hafa* selects a non-nominal and hence a nonagreeing participle, while *vera* selects a nominal, hence an agreeing participle.[20]

In contrast to adjectives and past participles, predicative NPs have their own gender and number, but they normally agree with their local subject in case, showing up in the nominative in finite clauses but in the accusative in accusative ECM infinitives:

(24) a. <u>Hún</u> var **góður prestur**.
  she.N.F.SG was good priest.N.M.SG
  'She was a good priest.'

 b. <u>Bítlarnir</u>   voru **góð** **hljómsveit**.
  Beatles.the.N.M.PL were good band.N.F.SG
  'The Beatles were a good band.'

(25) a. Við töldum <u>hana</u> vera **góðan** **prest**.
  we believed her.A.F.SG be good priest.A.M.SG
  'We believed her to be a good priest.'

 b. Við töldum <u>Bítlana</u>   vera **góða** **hljómsveit**.
  we believed Beatles.the.A.M.PL be good band.A.F.SG

Most adjectives and past participles inflect for the four cases, three genders and two numbers, as illustrated for *ríkur* 'rich' in (26):

(26)

		Masculine	*Feminine*	*Neuter*
Sg	Nom	rík-ur	rík	rík-t
	Acc	rík-an	rík-a	rík-t
	Dat	rík-um	rík-ri	rík-u
	Gen	rík-s	rík-rar	rík-s
Pl	Nom	rík-ir	rík-ar	rík
	Acc	rík-a	rík-ar	rík
	Dat	rík-um	rík-um	rík-um
	Gen	rík-ra	rík-ra	rík-ra

This is the most common and regular paradigm type, but there are many other types, some of them with radical phonological reshapings of both the stem and the endings. As seen, the paradigm is not "full", as there are some syncretisms, e.g. no gender distinction in the dative and genitive plural and no Nom/Acc distinction in the neuter and in the feminine plural, etc.

In spite of these syncretisms, the inflection is very rich (13 distinct forms in (26)). In addition, most adjectives and many past participles inflect for definiteness (so-called 'weak' inflection, see below) and for degree (with only two forms in the comparative but the same endings in the superlative as in the positive degree, i.e. basically the same endings as in (26)). All in all, the syntactic inflectional possibilities are 144 (4 cases x 3 genders x 2 numbers x 3 degrees x 2 (strong vs. weak)), but distinct forms are commonly 30.

Strikingly, however, all this richness is 'wiped out' in case the adjective has a stem that ends in a vowel: *hissa* 'surprized', *fullvalda* 'sovereign', *hugsi* 'pendent, (deep) in though', *viðeigandi* 'appropriate', *passandi* 'fitting, appropriate', *sveitó* 'provincial', etc. Adjectives of this sort reject inflection of all sorts. If adjectival agreement is a PF process, as will be argued in section 3.4, it is perhaps not surprising that it is sometimes blocked by purely phonological factors.

The basic simple subject-predicate agreement in finite clauses is confined to nominative case forms, as in e.g. (21) and (22). In case the clause contains no nominative argument,

adjectival and participial predictes show up in a default nonagreeing N/A.N.SG form, much as the finite verb shows up in a default nonagreeing 3SG form, as mentioned above:[21]

(27) a. Þá   var   kalt.
        then was.3SG cold.N/A.N.SG
        'Then it was cold.'
     b. Mér   var   kalt.
        me.D was.3SG cold.N/A.N.SG
        'I was freezing.'
     c. Okkur var   kalt.
        us.D   was.3SG cold.N/A.N.SG
        'We were freezing.'

As we saw in (25) above, nominative agreement is 'replaced', as it were, by accusative agreement in accusative ECM constructions. This may be understood such that the basic nominative is overwritten by the accusative in these constructions (Sigurðsson 2005a).

Secondary predicate agreement (SPA) differs from the basic primary predicate agreement in three ways:

(28) a. SPA crosses predication boundaries, i.e. it involves a predicate that agrees with a DP that is located in another (higher) predication.
     b. It is not subject to any case restrictions, that is, it may involve copying of not only the structural cases but also of dative and genitive case.
     c. Any DP may be the agreement controller or trigger (whereas primary predicate agreement can only be controlled by a local nominative (or accusative in ECM)).

The examples in (29) illustrate this:

(29) a. <u>Prestarnir</u>   hittu biskupinn   **drukknir**.
        priests.the.N.M.PL met   bishop.the.A.M.SG drunk.N.M.PL
        'The priests met the bishop drunk (i.e. the priests were drunk).'
     b. Prestarnir   hittu <u>biskupinn</u>   **drukkinn**.
        priests.the.N.M.PL met   bishop.the.A.M.SG   drunk.A.M.SG
        'The priests met the bishop drunk (i.e. the bishop was drunk).'
     c. Prestarnir   sýndu <u>biskupnum</u>   óvirðingu **drukknum**.
        priests.the.N.M.PL showed bishop.the.D.M.SG   disrespect drunk.D.M.SG
        'The priests showed the bishop disrespect (when he was) drunk.'
     d. Prestarnir   fóru til <u>biskupsins</u>   **drukkins**.
        priests.the.N.M.PL went to   bishop.the.G.M.SG drunk.G.M.SG
        'The priests went to the bishop (when he was) drunk.'

One way of analyzing facts of this sort is to assume that SPA is transmitted by PRO (cf. Sigurðsson 2002: 710):

(30) a. **priests.the$_i$** met bishop.the [PRO$_i$ drunk/agr$_i$]
     b. priests.the showed **bishop.the$_i$** disrespect [PRO$_i$ drunk/agr$_i$]

Alternatively, the predicate and the controller start out as a small clause, the predicate subsequently being obligatorily stranded under raising of the controller:

(31) a. **priests.the$_i$** met bishop.the [t$_i$ drunk/agr$_i$]
     b. priests.the showed **bishop.the$_i$** disrespect [t$_i$ drunk/agr$_i$]

If the stranding analysis in (31) is on the right track, the SPA involved might be analyzed in a similar vein as agreement of floating quantifiers, that is, as arising as DP internal concord of sorts (see below).

Infinitival secondary predicates differ from the 'simple' secondary predicates in (29) in that they do not involve obligatory case agreement; in fact, inherent case agreement into infinitives is often degraded (whereas case agreement is obligatory in simple cases as in (29)). This is illustrated in (32):

(32) a. <u>Henni</u> líkaði ekki að vera síðust/??**síðastri**.
     her.D liked not to be last.N.F.SG/??D.F.SG
     'She did not like to be the last one.'
     b. Við báðum <u>hana</u> að vera síðust/**síðasta**.
     we aksed her.A to be last.N.F.SG/A.F.SG
     c. Við skipuðum <u>henni</u> að vera síðust/?**síðastri**.
     we ordered her.D to be last.N.F.SG/?D.F.SG

Other secondary predicates that are introduced by a complementizer or a connective of some sort (*sem* 'as', *svona* 'so', etc.) sometimes show similar indeterminacy with respect to case:[22]

(33) a. <u>Honum</u> gekk vel sem **presti**/prestur.
     him.D went well as priest.D/N
     'He did well as a priest.'
     b. <u>Honum</u> leið ekki eins og **presti**/prestur.
     him.D felt not like and priest.D/N
     'He did not feel like a priest.'
     c. <u>Þér</u> verður of kalt svona **berum**/ber.
     you.D will-be too cold so naked.D/N

Multiple predicate agreement is attested in ECM and raising constructions, as illustrated below:

(34) Ég taldi þá hafa verið **sagða** hafa verið
     I believed them.A.M.PL have been said.A.M.PL have been
     álitna hafa verið ranglega **dæmda** vera **seka**.
     considered.A.M.PL have been wrongly judged.A.M.PL be guilty.A.M.PL
     'I believed them to have been said to have been considered to have been wrongly judged to be guilty.'

(35) Þeir voru **taldir** hafa verið **sagðir** hafa verið
     they.N.M.PL were believed.N.M.PL have been said.N.M.PL have been
     álitnir hafa verið ranglega **dæmdir** vera **sekir**.
     considered.N.M.PL have been wrongly judged.N.M.PL be guilty.N.M.PL
     'They were believed to have been said to have been considered to have been wrongly judged to be guilty.'

These examples are not very smooth, of course, but they are grammatical and the agreement facts are robust. Multiple predicate agreement provides clear evidence in favor of the PF feature copying approach to agreement pursued here.[23]

Not only the multiplication of agreement as such argues against a syntactic approach to agreement, so does also the fact that only the the highest predicate in (34), *sagða*, is obligatorily accusative, that is, the lower ones may alternatively show up in the nominative (*álitnir*, *dæmdir*, *sekir*). Optionality of this sort is unexpected under a syntactic approach to agreement (see also section 3.4).

Icelandic secondary predicate agreement has been partly described by several authors (e.g. Friðjónsson 1977, Thráinsson 1979, Andrews 1990, Sigurðsson 1989, 2002, A&a), but no exhaustive description of all the complexities that arise exists. The description above covers only the most central facts.

3.3 DP-internal concord

Icelandic DP-internal nominals generally agree in case, number and gender. This is illustrated for several types of modifiers and determiners in (36) (where the varition is however limited to gender, for reasons of space):

(36)		*N.M.PL*	*N.F.PL*	*N.N.PL*
	a.	strákar	stelpur	börn
		boys	girls	children
	b.	strákar**nir**	stelpur**nar**	börn**in**
		boys.the	girls.the	children.the
	c.	**allir** strákar	**allar** stelpur	**öll** börn
		all boys	all girls	all children
	d.	**tveir** strákar	**tvær** stelpur	**tvö** börn
		two boys	two girls	two children
	e.	**sterkir** strákar	**sterkar** stelpur	**sterk** börn
		strong boys	strong girls	strong children
	f.	**þessir** strákar	**þessar** stelpur	**þessi** börn
		these boys	these girls	these children
	g.	strákar(nir) **þínir**	stelpur(nar) **þínar**	börn(in) **þín**
		boys(.the) your	girls(.the) your	children(.the) your

Almost all kinds of DP-internal nominals take part in this, including the definite article (Icelandic has no indefinite article), quantifiers and indefinite pronouns, possessive pronouns (in the first and second person singular, the rare first and second person honorifics, and in the reflexive third person), demonstratives, some interrogative pronouns, the first four cardinals, adjectives and adjectival past participles. In addition, adjectives, adjectival past participles, and ordinals show a definite/indefinite distinction:

(37)		*N.M.PL*	*NF.PL*	*NN.PL*	
	a.	**sterkir** strákar	**sterkar** stelpur	**sterk** börn	INDEF
		strong boys	strong girls	strong children	
	b.	**sterku** strákarnir	**sterku** stelpurnar	**sterku** börnin	DEF
		stong boys.the	strong.girls.the	strong children.the	

The definite or 'weak' inflection, however, shows no gender or case distinctions in the plural and only very reduced case and gender ditinctions in the singular (all in all only three singular forms, as compared to mostly ten distinct singular forms in the 'strong' indefinite inflection).

Multiple concord is demonstrated in (38):

(38) a.   [All**ir** þess**ir** fjór**ir** fræg**u** leikarar] voru duglegir.
            all   these   four   famous   actors   were gifted
            N.M.PL   N.M.PL   N.M.PL   PL.DEF   N.M.PL   N.M.PL
            'All these four famous actors were gifted.'

      b.   Við hittum [all**a**   þess**a** fjór**a** fræg**u** leikara].
            we   met   all   these   four   famous   actors
            N   A.M.PL   A.M.PL   A.M.PL   PL.DEF   A.M.PL
            'We met all these four famous actors.'

      c.   Við hjálpuðum [öll**um** þess**um** fjór**um** fræg**u** leikurum].
            we   helped   all   these   four   famous   actors
            N   D.PL   D.PL   D.PL   PL.DEF   D.M.PL[24]
            'We helped all these four famous actors.'

In contrast to finite verb agreement and predicate agreement, DP concord is commonly strictly local (i.e. the concord source or controller and the targets of concord are commonly adjacent). However, the semipredicates *(al)einn* 'alone' and *sjálfur* 'self' and quantifiers like *allir* 'all, every', *báðir* 'both' and *sumir* 'some' are often separated from their DPs, as illustrated below:[25]

(39) a.   Strákarnir   höfðu **allir**   keypt bókina.
            boys.the.N.M.PL had   all.N.M.PL bought book.the
            'The boys had all bought the book.'

      b.   Hún sá   þá   kannski ekki **báða**.
            she saw them.A.M.PL maybe   not   both.A.M.PL
            'Maybe she did not see both of them.'

      c.   Hún sá   þá   kannski ekki **sjálf**.
            she saw them.A.M.PL maybe   not   self.N.M.PL
            'Maybe she did not see them herself.'

      d.   Henni   hafði aldrei leiðst   **einni**.
            her.D.F.SG had   never   felt-bored alone.D.F.SG
            'She had never been bored alone.'

Plausibly, the agreement of elements of this sort arises as DP internal concord, the quantifiers and semipredicates subsequently being stranded under movement of (the rest of) the DP (see Sportiche 1988). As mentioned in section 3.1.2, above, this analysis might also apply to 'simple' (non-infinitival) secondary predicate agreement.

3.4 Discussion

Even within only Icelandic, morphological agreement is so varied and complex that it is quite obvious, in fact, that we need to sharply distinguish between syntactic Agree and matching and their overt PF agreement exponents.

Recall our conception of Merge and Agree in (12) and (13):

(12) Two objects F and X may be merged only if the relation of Agree holds between them

(13) Agree holds between F and X, F the left-hand sister of X, iff X contains an active feature f_x, matching F

Overt agreement, on the other hand, is a morphological reflection or 'translation' of matching. Whenever Merge/Agree/matching applies, the possibility of agreement arises, that is, languages make parametric choices whether or not to signal each instance of Merge morphologically (i.e. in PF).

Matching in the present approach involves interpretation of features that would otherwise remain uninterpreted, not deletion of uninterpretable features. In other words, f_x matches F iff f_x is valued in relation to F (Sigurðsson 2004b). We may thus conceive of f_x as a variable that is assigned value under successful probing by the 'operator' F.

It is evident, however, that morphological agreement features are *not* always or even not generally the relevant matching features in syntax. Consider (40):

(40) All**ir**   ný**ir**   <u>pennar</u>
     all   new   pens
     N.M.PL N.M.PL N.M.PL

Whatever the exact structure of the DP may be (see Julien 2005 for a discussion), at least the following elements are involved:

(41) [... Q ... A ... NUM ... N ...]

Plausibly, the noun *penni/pennar* 'pen, pens' has a number variable, say +/- Plural, that is valued by NUM, so in this case the morphology closely reflects syntax.[26] However, that is also the end of the syntax-morphology coherence. When merged, Q and A probe for some N internal feature, say something like the categorial feature n; after all, adjectives and quantifiers do select (or are selected by) Ns, not e.g. Vs or Ps. However, Q and A do not overtly agree in '*n*-ness'. Rather, they copy *n*'s number and gender features and also get the same case as the DP when it is merged in the clausal structure (seemingly by percolation, but see below for another analysis). That is, while the syntactic matching involves '*n*-ness', the overt agreement involves copying of *n*'s subfeatures for gender, number and case (the latter arising or being assigned in PF, see below).

Gender is a mixed category. Many animate nouns have natural gender:

(42) a.   Masculine: *karl, strákur, hrútur, tuddi*: 'man, boy, ram, bull'
     b.   Feminine: *kona, stelpa, ær, kýr*: 'woman, girl, sheep, cow'
     c.   Neuter: *barn, lamb*: 'cild, lamb'

For most nouns, however, gender is a plain classificational feature with no semantic import. That is, it is like a phonological feature in making an overt distinction between items without itself adding or reflecting any semantics.[27] Consider the following examples:

(43) a.   Masculine: *kofi*   *penni*   *fótur*   'hut, pen, foot'
     b.   Feminine: *höll*   *bók*   *hönd*   'palace, book, hand'
     c.   Neuter: *hús*   *blað*   *læri*   'house, (news)paper, thigh'

It thus seems that many animate nouns have the semantic features MALE or FEMALE in addition to their formal gender feature, whereas other nouns have only formal gender: M, F, N (or [+M,-F], etc.). Some animate nouns can either have or not have a semantic gender feature. Thus, masculine *maður* may mean 'man (i.e. male human being)', 'person' or 'human being' and *hestur* may mean 'male horse' or just 'horse' in general.

The semantic FEMALE/MALE features are of course visible and interpretable at the conceptual interface, SF, but they are arguably invisible at PF. Rather, any (Icelandic) noun selects and incorporates a formal gender feature (M, F, N or +/- M and +/- F) in PF.[28] Most nouns that have the semantic FEMALE/MALE features have natural formal gender, but there are many exceptions, showing that semantic and formal gender are distinct features even in animate nouns: Masculine *kvenmaður* 'woman', neuter *fljóð* 'woman' (poetic), neuter *karlmenni* 'strong and courageous man', neuter *naut* 'bull', etc. Derivational morphology generally overrides semantic gender features, as seen in e.g. the famous German neuter noun for 'girl', *Mädchen* (*-chen* being a derivational morpheme deciding the formal, neuter gender of the derived noun, irrespective of the noun's semantic gender).[29]

In contrast to prevailing assumptions, then, the grammatical or formal gender features, M, F, N, are *non-syntactic*, being visible/interpretable at PF only. As mentioned above, these features may profitably be analyzed as PF noun classifying features. I assume that they are merged with Ns at the second deepest PF level, that is, at the morphophonological level (cf. (5) above), see below.

Not only is there evidence that we must sharply distinguish between formal and semantic gender, there is also evidence that morphological number and case are PF features that must be kept strictly apart from syntactic/semantic number and argument-predicate relations. That is, any Icelandic noun incorporates morphological number and case features, in addition to a formal gender feature.[30] Morphologically, all three features form a portmanteau morpheme, so *n* is evidently a feature variable, not getting its final shape until after gender/number/case incorporation in PF. Thus, the phonological and phonetic derivation of *penni* 'pen', where *-i* is the N.M.SG ending, involves the following steps, with successive roll-up movement in PF (I shall return to PF roll-up movement in section 4):

(44) a.   n-penn $\rightarrow$ penn-n

      b.   M + penn-n $\rightarrow$ penn-n-M

      c.   SG + penn-n-M $\rightarrow$ penn-n-M-SG

      d.   NOM + penn-n-M-SG $\rightarrow$ penn-n-M-SG-NOM

      e.   penn-n-M-SG-NOM $\rightarrow$ penn-i

      f.   penni$\rightarrow$ ... $\rightarrow$ [pʰɛn:I]

I am using *n* here as a short for all the syntactic features matched and incorporated by *penn-*, including for example a syntactic number category and the (negatively matched) MALE, FEMALE features. Thus, *n-penn* in (44a) represents a complex syntactic strucure (within which Move may or may not have taken place – I do not take a stand on that here). At the deepest PF level (i.e. (44a)), called Sign formation in (5) above, this structure is transformed into the linguistic sign *penn-n*, which subsequently is input into the morphophonological processes in (44b-d) and the phonological and phonetic processes in (44e, f). In a language like English, on the other hand, only (44a,c,f) are involved in the phonological and phonetic formation of the noun *pen*.[31]

The agreeing N.M.SG adjective *nýr* 'new' in e.g. *nýr penni* 'new pen', in turn, copies the grammatical feature values of *penni*: /ný-α/ /penn-n-**N.M.PL**/ $\rightarrow$ /ný-α-**N.M.PL** penn-n-**N.M.PL**/. The same applies to other agreeing nominals. The agreement process is indeed

preconditioned by and thereby related to syntactic Agree and matching, but it is crucially a distinct phenomenon, taking place in PF, not in Narrow Syntax, involving copying of feature values, not matching.

Case comes from outside of the DP, from where it seemingly percolates to all the 'case-receptive' elements within the DP (see the pecolation approach in Sigurðsson 1989). Consider (45):

(45) a.　Við　keyptum　tvær　nýjar　bækur.
　　　　we.N　bought　two.A.F.PL　new.A.F.PL　books.A.F.PL
　　 b.　Við　skiluðum　tveim　nýjum　bókum.
　　　　we.N　gave-back　two.D.PL　new.D.PL　books.D.F.PL

On the present understanding of agreement as PF feature copying, however, we need not assume the deus ex machina of case percolation. Rather, the head noun gets all its features set prior to agreement, the agreeing items subsequently copying their case, number and gender simultaneously. That is, case agreement is not a different process than gender/number agreement.[32]

Primary predicate agreement may be analyzed along similar lines. Consider (46), where feminine *þær* 'they.N.F.PL' is supposed to refer back in discourse to *bækurnar* 'the books. F.PL' (Nom or Acc):

(46) a.　… bækurnar?　Þær　hafa　líklega　verið dýrar.
　　　　… books.F.PL　they.N.F.PL　have　probably　been expensive.N.F.PL
　　 b.　… bækurnar?　Þær　hafa　líklega　verið seldar.
　　　　… books.F.PL　they.N.F.PL　have　probably　been sold.N.F.PL

On standard assumptions, the subjects start out as internal arguments, [expensive X] and [sold X]. When the subject is merged with the adjective or the participle, the latter probe for the subject's *n*-feature, in the same fashion as described above for attributive adjectives and other DP internal modifiers and determiners, later on copying the subject's gender-number-case features in PF.

Notice, however, that the subjects are mere *n*-indexicals in syntax, not getting any value for gender until in PF, where they copy the PF gender feature of the discourse antecedent *bækurnar* 'the books'.[33] Accordingly, the feature copying of the predicates could not possibly be completed until in PF. On the reasonable hypothesis that gender-number-case agreement is a single process, it follows that no part of it takes place until in PF.

Another kind of evidence in favour of seeing gender and hence gender-number-case agreement as PF phenomena comes from the fact that gender feeds purely phonological processes like the so-called *u*-mutation shifting [a] to [œ] or [Y] under certain conditions. The relevant conditions are somewhat varying, but, strikingly, there are cases where they involve 'knowledge' of gender and number. Thus, *lat*- [la:tʰ-] 'lazy' becomes *löt* [lœ:tʰ] in precisely the feminine singular nominative and the neuter plural nominative/accusative (see Rögnvaldsson 1981).

Multiple predicate agreement, as in (34) and (35) above, illustrates the same as multiple concord, namely that a single noun may be targeted by many probes (a fact that runs counter with the approach in Chomsky 2000, see Carstens 2001 and A&a). Consider simultaneous multiple concord and multiple predicate agreement, as in (47):

(47) [Allir　þessir　prestar]　eru　taldir　verða　útnefndir.
　　　all　　these　　priests　are　believed　be　　nominated

N.M.PL N.M.PL N.M.PL   N.M.PL   N.M.PL
'All these priests are believed to get nominated.'

The subject 'all these priests' starts out as the sister of 'nominated' ([nominated [all the priests]]). Within the subject DP, both the demonstrative 'these' and the quantifier 'all' probe for the noun's ('priests') *n*-feature, and at the clausal level both the participles, 'nominated' and 'believed' also probe for the *n*-feature of the noun. In all cases, this probing for *n* in syntax gets reflected in PF as copying of N's gender-number-case PF values.

Finally, recall the secondary predicate agreement indeterminacy in infinitives, as in (32)=(48):

(48) a. <u>Henni</u> líkaði ekki að vera síðust/??**síðastri**.
          her.D liked not to be last.N.F.SG/??D.F.SG
          'She did not like to be the last one.'
      b. Við báðum <u>hana</u> að vera síðust/**síðasta**.
          we aksed her.A to be last.N.F.SG/A.F.SG
      c. Við skipuðum <u>henni</u> að vera síðust/?**síðastri**.
          we ordered her.D to be last.N.F.SG/?D.F.SG

Inasmuch as both secondary predicate forms are acceptible, there is no semantic distinction between the two, suggesting that the variation arises in PF.[34]

In sum, there is conclusive evidence that DP-internal concord and predicate agreement are PF processes, preconditioned by but distinct from syntactic Agree and matching. Crucially, the agreeing features are added in PF and are thus not the same features as the ones that are matched in syntax. As we shall see in the next section, Icelandic finite verb agreement displays a much closer correlation between syntactic matching and morphological agreement (the agreeing PF features being 'the same' as some of the matched syntactic features). The evidence showing this comes primarily from the much discussed Person Restriction on Icelandic finite verb agreement. Importantly also, the Person Restriction offers evidence, first, that Move in Narrow Syntax is a 'rescuing operation' that overcomes potential intervention effects, and, second, that roll-up 'head' movement is a very different phenomenon, taking place in PF.

4. Phi-feature matching and the Person Restriction

Recall the basic facts of Icelandic finite verb agreement, described in section 3.2:

I   The agreement controller is always a nominative argument. In the absense of a nominative argument the finite verb shows up in a default form (3SG).
II   The agreement controller is most commonly a (definite) nominative subject that has been raised by NP-movement. This gives rise to plain *Subject Agreement*, SA.
III In the absense of a high (definite) nominative subject, the agreement controller may be a low nominative, either a late 'logical' (indefinite) subject, an object in a Dat-Nom construction, a subject of a nominative ECM infinitive (or small clause), or a predicative NP. This gives rise to four alternative types of reverse agreement: *Late Subject Agreement*, LSA (with or without expletive *það* 'there, it'), *Nominative Object Agreement*, NOA, *Nominative ECM Agreement*, NEA, and *Reverse Predicate Agreement*, RPA.

All five agreement types are illustrated, again, in (49):

(49) a.   SA: 'we.N **have**.1PL come here before'/'here **have**.1PL we.N come before'
     b.   LSA: 'maybe **have**.3PL come here some linguists.N'
     c.   NOA: 'her.D **have**.3PL probably not liked these comments.N'
     d.   NEA: 'her.D **have**.3PL perhaps seemed [they.N be intelligent]'
     e.   RPA: 'then **have**.2PL it probably only been you.N.PL'

Plain Subject Agreement is unrestricted, showing up to six different person/number forms of the finite verb (most commonly four or five). Reverse Predicate Agreement, RPA, is also unrestricted with respect to person/number of the agreement controller, as partly illustrated in (50):

(50) a.   **Ert**   þetta   þú?
          are.2SG this/it   you.NSG
          'Is this/it you?'
     b.   Það   **erum**   bara   við.
          it   are.1PL   only   we.N
          'It's only us.'
     c.   Þá   **hafið**   þetta líklega   verið þið.
          then have.2PL this probably been you.NPL
          'The, this/it has probably been you.'

In another respect, however, RPA is highly restricted: It is possible only in clauses with demonstrative *þetta* 'this, it' or *það* 'it' as a subject. Arguably, both *þetta* and *það* are devoid of person and number features (hence incapable of preventing the clausal Person and Number 'heads' from probing the phi-features of the predicative DPs).

The other three types of reverse agreement are all restricted with respect to the properties of the nominative agreement controller itself. Very briefly, the restrictions can be described as follows:

(51) a.   Nominative objects ('me like they') are exclusively in the 3rd person (with some 'near-exceptions', discussed in e.g. Sigurðsson 1996 and Schütze 2003).
     b.   Nominative ECM subjects are possible in all persons ('her seems.3SG we/you (be) intelligent'). However, only 3rd person nominatives may ever trigger agreement of the finite matrix verb ('her seem.3PL they (be) intelligent').
     c.   Late subjects ('maybe have come here some guests') are exclusively non-pronominal, hence exclusively in the 3rd person (usually they must also be indefinite).

The common effect of these restrictions is stated in (52):

(52) The finite verb NEVER shows up in an (unambiguously) agreeing 1st or 2nd person form in any of the three constructions (LSA, NOA, NES).

This is a remarkable fact that has raised wide interest and much discussion.[35] For reasons of space, I shall here only discuss it with respect to monoclausal Dat-Nom vs. Nom-Dat constructions. Three types of predicates are of relevance:

I   **Nom-Dat** predicates like *hjálpa* 'help', taking a nominative subject and a dative object: These are very numerous (Barðdal 2001a, Maling 2002).

II.   **Dat-Nom** predicates like *líka* 'like', *leiðast* 'find boring', taking a dative subject and a nominative direct object (Thráinsson 1979, Zaenen, Maling and Thráinsson 1985, Sigurðsson 1989, 1996, and many others).

III   Alternating **Dat-Nom & Nom-Dat** predicates like *henta* 'suit', where either the Nom or the Dat may be either the subject or the direct object (Bernódusson 1982, Barðdal 1999, 2001b, Platzack 1999, Sigurðsson 2005a).

First: In the plain Nom-Dat construction, only the Nom can act as a subject, as for instance seen by the fact that it is exclusively the Nom that 'inverts' with the finite verb in V2 structures:

(53) a.   Líklega hafið   **þið**   hjálpað okkur.
          probably have.2PL you.NPL helped us.D
          'Probably, you have helped us.'
     b.   *Líklega hafið **okkur** hjálpað þið.

Notice also that the plain Nom-Dat construction is like any other nominative subject contruction (Nom-Acc, Nom-Dat-Acc, Nom-Gen, etc.) in being entirely unrestricted with respect to person/number agreement.

Second: In the pure Dat-Nom construction, only the dative acts as a subject:

(54) a.   Líklega hafa   **henni** líkað þeir.
          probably have.3PL her.D liked they.N
          'She has probably liked them.'
     b.   *Líklega hafa **þeir** líkað henni.

Third: Alternating Dat-Nom & Nom-Dat predicates allow either argument to act as a subject (the Dat-Nom variant being slightly more neutral):

(55) a.   Líklega hafa   **henni** ekki hentað þau.   (henni = subject)
          probably have.3PL her.D not suited they.N
          'Probably, they were not suitable to her.'
     b.   Líklega hafa   **þau**   ekki hentað henni.   (þau = subject)
          probably have.3PL they.N not suited her.D
          'Probably, they didn't suit her.'

The same applies to Dat-Nom & Nom-Dat passives (of Nom-Dat-Acc verbs):

(56) a.   Líklega hafa   **henni** verið gefin þau.   (henni = subject)
          probably have.3PL her.D been   given they.N
          'Probably, they have been given to her.'
     b.   Líklega hafa   **þau**   verið gefin henni.   (þau = subject)
          probably have.3PL they.N been given her.D
          'Probably, they have been given to her.'

Thus, Icelandic has **two** distinct datives:[36]

- Dative I: A non-quirky, **plain dative**, selected by verbs like *hjálpa* 'help', and also optionally selected by verbs like *henta* 'suit' and *gefa* 'give'.
- Dative II: A **quirky dative**, selected by verbs like *líka* 'like', and also optionally selected by verbs like *henta* 'suit' and *gefa* 'give'.

Quirky datives are the only datives that may act like subjects.[37]

In all cases, the Nom-Dat patterns show no person restrictions whatsoever, whereas 1st and 2nd person nominatives are excluded in the Dat-Nom patterns. This is illustrated below for *henta* 'suit':[38]

(57) a.   Líklega   **hafið**   þið   ekki hentað henni.
         probably have.2PL you.NPL not   suited   her.D
     b.   *Líklega **hafið**   henni ekki hentað þið.
         probably have.2PL her.D not   suited you.NPL

(58) a.   Líklega   **höfum**   við   ekki hentað   henni.
         probably have.1PL we.N   not   suited   her.D
     b.   *Líklega **höfum**   henni ekki hentað við
         probably have.1PL her.D not   suited we.N.

The generalization that emerges is as follows:

(59)   Quirky dative blocks 1st and 2nd person agreement
        (whereas plain dative has no such blocking effect).

Let us refer to (59) as the *Person Restriction*, PR.[39] That the presense of a quirky dative is indeed the crucial factor in PR is highlighted by the fact that it is not found in the Reverse Predicate Agreement construction, as already illustrated in (50)=(60):

(60) a.   **Ert**   þetta þú?
         are.2SG this/it you.NSG
         'Is this/it you?'
     b.   Það   **erum**   bara   við.
         it   are.1PL only   we.N
         'It's only us.'
     c.   Þá   **hafið**   þetta líklega   verið þið.
         then have.2PL this   probably been you.NPL
         'The, this/it has probably been you.'

As I have argued elsewhere (in A&a and 2005a), PR can be successfully accounted for as an INTERVENTION EFFECT, caused by the quirky dative (in contrast to e.g. demonstrative *þetta* and *það*, as in (60)).[40] This follows, as we shall see, if the quirky dative has *an extra feature that matches Person*.

A crucial factor of the analysis is that the nominative argument, θ_1, is merged lower than the dative argument, θ_2, in both Dat-Nom and Nom-Dat constructions. Let us first consider the derivation of the Nom-Dat pattern, with no person restrictions. The derivation (of both Nom-Dat and Dat-Nom) starts out as (61):

(61)   V [θ_1]   (and $\theta_1 \rightarrow$ Nom)

As indicated, θ_1 becomes Nom without further ado, being given as the *first case* (see Sigurðsson 2005a for implementation of this idea). The dative case, in contrast, must be syntactically licensed. I tentatively assume that V is selected by v_D, v_D in turn being matched by the dative, θ_2 (for a similar idea, see Boeckx 2003b). We thus get:

$$(62) \quad v_D \; [\theta_2 - V - Nom] \qquad (and \; \theta_2 \rightarrow Dat)$$

Plausibly, v (e.g. v_D) matches Asp(ect), Asp matching T(ense), T in turn matching M(ood).[41] In addition, both the arguments have uninterpreted Num(ber) and Pers(on) features, Num_O, $Pers_O$ and Num_S, $Pers_S$. Consider the derivational stage in (63):

$$(63) \quad M \; [T - Asp - Pers_O - Num_O - v_D - Dat - V - Nom]$$

The case feature of Dat has now been valued in relation to v_D and its ϕ-features have been valued in relation to $Pers_O$ and Num_O. If Dat has no further active features to be valued, its syntactic computation is completed, and it gets 'frozen in place' (cf. Chomsky 2001a: 6). Nom, in contrast, still has active ϕ-features. Since Dat has no active features it does not intervene and the ϕ-features of Nom may be probed across it by Num_S:

$$(64) \quad Num_S \; [M - T - Asp - Pers_O - Num_O - v_D - Dat - V - Nom]$$

Probing, hence also matching and Move, are blocked by active intervention under standard assumptions about relativized minimality or the Minimal Link Condition. Thus, if Dat had an active number feature, that feature would block Num_S from reaching Nom, and the number feature of Nom would remain unvalued.[42] In contrast, if the structure did not contain any dative argument (and $Pers_O$, Num_O elements), Num_S would not have any problems in finding and valuing the number feature of Num. What we have here, however, is a third type of situation, with a potential intervener that has been inactivated. That is, Dat has a number feature that has been valued, hence inactivated by Num_O, so, if Num_S is to find the number feature of Nom it has to probe across the inactive number feature of Dat. This is exactly the situation of INACTIVE INTERVENTION, forcing Move, as described in section 2:

> A probe F *checks* all elements in X that are potential hosts of its goal feature f, containing an *inactive* value f_x of the searched feature, until it finds a *matching* one, containing the active value f_x, where probing immediately stops. If f_x is the only value of f in the Search Domain, movement need not take place (and cannot, except perhaps by pied piping), and a Long Distance Matching correlation arises. … If, on the other hand, the searched structure contains an inactive f value f_x, then Move places f_x immediately to the left of the highest f_x and its inactivating probes, tucking it in there for the purpose of successful matching, $F \leftrightarrow f_x$ …

It follows that Nom in (64) must move across both Dat itself and its inactivating probes, v_D and $Pers_O$, Num_O. This yields 'low' NP-movement, illustrated in (65):

$$(65) \quad Num_S \; [M - T - Asp - \mathbf{Nom} - Pers_O - Num_O - v_D - Dat - V - \cancel{Nom}]$$

Next, $Pers_S$ is merged, yielding (66):

$$(66) \quad Pers_S \; [Num_S - M - T - Asp - \mathbf{Nom} - Pers_O - Num_O - v_D - Dat - V - \cancel{Nom}]$$

Pers$_S$ is local with respect to Nom (the two not being separated by any active or inactive person feature), and thus Nom would stay put if nothing further were to happen. However, Nom usually has to move in order to successfully match features of the CP-domain, an issue I shall return to.

The structure in (66) is a plain Nom-Dat structures (of predicates like *hjálpa* 'help', and of the Nom-Dat pattern for verbs like *henta* 'suit'), with no person restriction. This structure arises as a result of the fact that the dative is non-quirky and hence the Dat argument gets all its features locally valued by v$_D$ and Pers$_O$/Num$_O$, thereby becoming syntactically inactive, 'frozen in place', hence not an intervener.

Consider however what happens in a structure like (67) if the dative is quirky, Dat/Q:

(67)   Pers$_S$ [Num$_S$ – M – T – Asp – **Nom** – Pers$_O$ – Num$_O$ – v$_D$ – Dat/Q – V – ~~Nom~~]

In this case, the dative argument is *not* fully valued or interpreted by its local probes, as it has the active quirky feature. The feature in question is evidently an extra person feature, or some closely related feature, matching Pers$_S$.[43] This derivation is blocked, though, if Nom has an active 1st or 2nd person feature. In that case Nom itself must be targeted by Pers$_S$ (being a closer target than is Dat/Q) hence the Person Restriction described above. However, if Nom is in the 3rd person it has only a relatively inactive person feature (sometimes claimed to be "no person"), and Pers$_S$ is free to probe across it until it finds a more active person feature, namely the quirky extra person feature of Dat/Q. Subsequently, Dat/Q raises across Nom as well as Num$_S$:

(68)   Pers$_S$ [**Dat/Q** – Num$_S$ – M – T – Asp – **Nom** – Pers$_O$ – Num$_O$ – v$_D$ – ~~Dat/Q~~ – V –
       ~~Nom~~]

Later in the derivation, both arguments raise to successfully match features of the CP-domain, see below.

The derivation of plain Nom-Acc patterns is parallel to that of Nom-Dat patterns, with the difference that V is selected by plain v. The structural cases, Nom and Acc, come for nothing as the first and the second case (Sigurðsson 2005a, 2005b), as illustrated in (69):

(69)   a.   V [θ$_1$]   (and θ$_1$ → Nom)
       b.   θ$_2$ [V – Nom]   (and θ$_2$ → Acc)
       c.   v [Acc – V – Nom]

Notice that there is no delay in case decision here. However, if V gets selected by v$_D$ instead of plain v, Acc gets overwritten by Dat.[44]

Consider the derivational stage in (70):

(70)   Num$_S$ [M – T – Asp – Pers$_O$ – Num$_O$ – v – Acc – V – Nom]

All the features of Acc are fully interpreted so it is 'frozen in place' and hence Num$_S$ may freely probe for the number feature of Nom, across Acc. Subsequently, Nom raises across Acc and its inactivating probes (the shortest move possible), and Pers$_S$ is merged, yielding:

(71)   Pers$_S$ [Num$_S$ – M – T – Asp – **Nom** – Pers$_O$ – Num$_O$ – v – Acc – V – ~~Nom~~]

Pers$_S$ probes for the person feature of Nom, but since the two are entirely local (not being separated by any inactivated person feature), Nom is not forced to raise for the purpose of successful person matching.[45] This is just like in (66) above. As already mentioned, however, it usually has to raise to successfully match a feature or features of the CP-domain, such as Top in the approach of Rizzi (1997). Plausibly, this also applies to Acc, at least in the unmarked case (although object raising is usually masked by PF movements of other elements). If so, all the verbal features become adjacent, as illustrated in (72):

(72)   ... Pers$_S$ – Num$_S$ – M – T – Asp – ~~Nom~~ – Pers$_O$ – Num$_O$ – v – ~~Acc~~ – V – ~~Nom~~

All these features have now been matched and/or valued, so they have become syntactically inactive. That is, nothing further happens to this string of features in syntax, so it may be transferred to the interfaces, PF and SF.[46]

Subsequent roll-up V-raising in PF yields the order of overt elements in the finite verb in a language like Icelandic: [V-v-Ø-Ø-Ø-T-M-Num$_S$-Pers$_S$], where Num$_O$, Pers$_O$ and Asp remain silent. Thus, the subjunctive past first person plural *leituðum* 'looked for' has roughly the following PF-derivation (see the morphological analysis in Sigurðsson 2001):

(73) a.   v-leit   →   leit-v
      b.   Num$_O$ + leit-v   →   leit-v-Ø
      c.   Pers$_O$ + leit-v-Ø   →   leit-v-Ø-Ø
      d.   Asp + leit-v-Ø-Ø   →   leit-v-Ø-Ø-Ø   (= leit-v)
      e.   PAST + leit-v   →   leit-v-PAST
      f.   SUBJ + leit-v-PAST   →   leit-v-PAST-SUBJ
      g.   PL + leit-v-PAST-SUBJ   →   leit-v-PAST-SUBJ-PL
      h.   1 + leit-v-PAST-SUBJ-PL   →   leit-v-PAST-SUBJ-PL-1
      j.   leit-v-PAST-SUBJ-PL-1   →   leit-a-ð-i-u-m
      k.   leit-a-ð-i-u-m   →   [lɛi:tYðYm]

Thus, roll-up 'head-movement' does exist, but it takes place in PF, not in Narrow Syntax.[47] As discussed in section 3.4, Icelandic N-raising is like Icelandic V-raising in this respect, rolling up grammatical features in PF.[48] Roll-up movement is an economic way of 'packing' complex feature information in PF (see the Compactness Principle in Sigurðsson 2004c), although it is evidently not the only way of doing so.

The agreeing values '1st person' and 'plural' in *Við leituðum* 'we looked for' are evidently copied from the overt nominative subject, in a similar fashion as nominal agreement features are PF copied from nouns.[49] However, finite verb agreement in languages like Icelandic differs from nominal agreement in that it does not 'spread' or 'multiply':

(74)   <u>Við</u> mund**um**   hafa leitað   hans.
       we   would.1PL have looked   him.GEN
       'We would have looked for him.'

Examples like 'we would.**1PL** have.**1PL** looked.**1PL** him' are non-existent in the Icelandic type of languages. 'Person spreading' of this sort is however found in at least some Bantu languages, as illustrated for Swahili in (75) (adapted from Carstens 2001: 150):

(75) a.   <u>Juma</u> **a**likuwa   **a**mepika   chakula.
            Juma   3SG.was   3SG.cooked food

'Juma had cooked food.'
b. (Mimi) **ni**likuwa **ni**nagili **ni**kifanya kazi.
(I) 1SG.was 1SG.still 1SG.done work
'I was still working.'

In addition, Swahili spreads its nominal number/class markers, not only DP-internally but also to predicates (see e.g. Carstens 2001). It thus seems that PF agreement feature copying is an even more widespread phenomenon in Swahili than in Icelandic.

5. Concluding remarks

In this paper I have presented arguments, both conceptual and empirical, that Agree and agreement must be kept strictly apart: Agree is a precondition on syntactic Merge and subsequent matching, matching in turn involving feature valuation (and not feature elimination). In contrast, agreement is a pure PF process, involving copying of feature values. Whenever Merge/Agree and subsequent matching applies, the possibility of agreement arises, i.e. languages make parametric (PF) choices whether or not to morphologically signal each instance of Merge/Agree/matching. Thus, agreement is in effect a PF sign of compositionality.[50]

The approach presented develops minimalistic ideas in several respects:

I   Individual features are the only syntactic primitives and hence there can be no complex functional heads like Infl or ϕ-complete T.

II   The notion of uninterpretable syntactic features (and hence deletion of such features) is dispensed with. Formal features may ideed be invisible to the semantic interface, but the reason for that is that such features are added in PF, by feature copying processes (that is, such features never enter Narrow Syntax). It follows that we can uphold the hypothesis that Narrow Syntax transfers the *same* string of syntactic information to both the interfaces (the interfaces subsequently 'translating' the string differently).

III   Move is not a subcase of Merge but (indirectly) triggered by Merge. When a feature F is merged to the structure X it probes into X, *checking* all elements that are potential hosts of its goal feature f, containing an *inactive* value ɟ_x of the searched feature ('frozen in place'), until it finds a *matching* one, containing the *active* value f_x, where probing immediately stops. Subsequently, Move places f_x immediately to the left of the highest ɟ_x and its inactivating probes, tucking f_x in there for the purpose of successful matching, $F \leftrightarrow f_x$ (which would otherwise be 'disturbed' by intervention of ɟ_x). – That is, Move tucks in as a 'rescuing operation', whereas Merge adds information to structure, thereby extending it.

Thus, the present approach develops a principled understanding of Move and its correlation to Merge. If this understanding can be maintained roughly as presented here, it solves one of the most central and recalcitrant problems in formal syntax theory. In addition, the approach, it seems, accounts successfully for the intricacies of Icelandic quirky agreement.

Finally, the present study of the interrelations between syntactic matching and morphological agreement suggests that roll-up head-movement, such as verb raising of the Icelandic sort, takes place in PF, where it is a morphophonological 'word formation' process. This kind of process is evidently non-syntactic, as it serves no syntactic purpose, as far as can be seen. Instead, it is an economic way of 'packing' complex feature information in PF. If

this is on the right track, PF is a multilayered and a highly complex system, producing (largely arbitrary) strings that can be radically different from underlying syntactic structures. In view of the surface variation observed in the world's languages, including sign languages, this would in fact seem to be an expected and a rather unspectacular conclusion.

Notes

[1] That is, the 'semantic component' vs. the 'phonological component' in Chomsky 2004 or the 'semantic form' vs. the 'phonetic form' in Chomsky 2005b. The term *perceptible form* refers to the 'sign form' of sign languages as well as the 'sound form' of oral languages, that is, it refers to PF in a broad sense. Alternatively, one might think of PF in a narrow sense, as a process or a system that transforms Narrow Syntax 'products' into a linguistic sign system, irrespective of the physical form of the signs (which, in turn, calls for an interface between this narrow, universal PF and the language- or code-specific sign systems).

[2] But, for early minimalistic approaches to it, see e.g. Platzack (1993, 1994), and Josefsson (1998).

[3] Verbal number of this sort is, however, found in many languages (see Corbett 2000: 145).

[4] Logically, it is not impossible that PF and SF add elements that are in fact unrelated through NS but are conceived of by linguists as being interrelated – hence the cautious formulation.

[5] Person and Tense are 'grammaticized' more often than are Location and Direction, it seems. I do not have any specific hypothesis or idea about why this should be so – if indeed it is so.

[6] I am assuming that the nominative is merged as a sister to the verb (see Sigurðsson 2005a and section 4 below), but this is immaterial here.

[7] This SF presentation is highly simplified, no CP features being taken into account (see Sigurðsson 2004b).

[8] Interestingly, however, the most common way of expressing future tense in both Swedish and Icelandic is *not* to express it, as it were, but rather by using the simple present tense (often this null-strategy is also aviailable in English, e.g. *He leaves on Saturday*). Future tense can evidently be expressed in the Germanic languages without having any overt exponent, much like for instance the middle 'category' in English and Dutch. See the discussion of silent functional categories in Sigurðsson 2004c (cf. also Kayne 2003).

[9] Or, if we opt for a design with complex syntactic primitives, we will have to develop a theory of some non-syntactic module where these complex entities come into being plus a theory of the interface beetween such a module and Narrow Syntax. On the face of it, this seems to be a much more costly approach than the purely syntactic approach pursued here (and argued for in Sigurðsson 2000 and subsequent works). – Obviously, however, syntactic features are complex in the sense that they have both content and combinatory or structural properties, that is to say, properties that make it possible for them to match and combine with other elements (hence the atom metaphor in A&a).

[10] A more complex operation that I shall not consider here is merger of a feature built structure XW with another complex feature built structure YZ, but for a discussion of some of the complications that arise see van Riemsdijk (2005). See also Heinat (2005) on phrases as probes.

[11] An interesting alternative (but arguably too strong) is the Local Merge Algorithm developed in Fortuny 2004, saying, roughly, that Merge/Agree holds between F and X iff the 'head' of X can restrict the value of F.

[12] This presupposes that Quantifier Raising effects should *not* be accounted for in terms of covert movement, a complex issue that I shall not address here (but see Kayne 1998a for discussion).

[13] I assume this general approach here. However, there is evidence that positive matching takes precedence over negative matching (Sigurðsson 2004b), suggesting that we might need a more fine-grained approach to intervention. – An inactive feature value is either inactivated in the derivation (see section 4) or inactive already in the numeration (a lexical option).

[14] Concord (see e.g. Carstens 2000, 2001) often shows properties that differ from those commonly observed in finite verb agreement and predicate agreement, at least superficially. I assume (and argue), however, that it is a subtype of the more general phenomenon of agreement.

[15] The agreeing item is set in bold face, whereas the agreement controller or trigger is underlined.

[16] Third person singular is usually homophonous with either first or second person singular. A few verbs have six distinct forms in the present indicative, though (verbs like *sjá* 'see', with a root ending in a vowel).

[17] Referred to as 'D/NcI agreement' in A&a; the other three terms are the same as there.

[18] As seen by the *sagt*.N/A.SG.N(default) / *sagðir*.N.PL.M alternation, the nominative restriction also applies to predicative agreement, see further below. The same variation between agreement vs. non-agreement is observed for clauses with predicates that can take either a quirky or a nominative subject (with different θ-roles):

(i)   a.   Okkur   var   kalt.
            us.D   was.3SG   cold.N/A.N.PL
            'We were freezing.'
    b.   Við   vorum   kaldir/kaldar/köld.
            we.N   were.1PL   cold.N.PL.M/F/N
            'We were cold (to touch). / We were cool/brave.'

[19] The present participle is adjectival in these examples, but there are also numerous cases of verbal present participles (see Friðjónsson 1982).

[20] In view of the French agreement facts discussed by Kayne (1989), there is obviously more to be said about this, but I leave the issue here.

[21] For arguments and evidence against analyzing these forms as agreeing with a *pro* element, see e.g. A&a.

[22] In contrast, there is no indeterminacy with respect to number and gender agreement: it is obligatory in adjectival and past participial predicates, with the sole exception of predicates that are quirky case assigners (such predicates always show up in a default nonagreeing form).

[23] For recent syntactic approaches, however, see Hiraiwa (2005) and Nomuro (2005).

[24] Recall that there are no gender distinctions in the dative and genitive plural, and that definite or 'weak' adjectives have no case/gender distinctions in the plural.

[25] Similar facts, albeit more complex, obtain for the 'each' part of Icelandic split reciprocal and distributive pronouns (i.e. complex 'each other' and 'each their own' pronouns, see Sigurðsson 1994).

[26] This is the general picture. However, discrepancies between syntactic/semantic number and morphological or formal number do occur (see Thráinsson 1983), suggesting that formal number is specifically assigned in PF, 'on top of' or in addition to syntactic/semantic number. I'll return to this below.

[27] Making overt disinctions of this sort is not only a cost but also a virtue (Sigurðsson 2003: 243), much as it is a virtue to phonologically distinguish between e.g. *cable* and *table*.

[28] The formal gender feature is usually only indirectly visible in nouns, through its effects on the selection of overt case/number endings (i.e. through its effects on inflectional classification). Thus, feminine, nominative singular *ausa* 'scoop, ladle' is *ausu* in the oblique singular cases and *ausur* in nominative and accusative plural, whereas neuter *auga* 'eye' is the same in the other singular cases and *augu* in nominative and accusative plural. For a handful of kinship nouns, though, no such effects on case/number endings are observed, that is, *bróðir,*

dóttir, faðir, móðir, systir 'brother, daughter, father, mother, sister' all inflect the same (as opposed to e.g. *sonur* 'son'). However, they all trigger masculine vs. feminine agreement in accordance with their natural gender, suggesting that morphology interprets them as having formal gender features.

[29] In general, there is a tendency for gender to get affected by the phonological shape of the root incorporating it, most Icelandic nouns with a root in –*óC* or –*iC*, for instance, being feminine, etc. (see Jónsdóttir 1990). That is, gender selection shows 'combinatory tendencies' that resemble tendencies commonly seen in phonotactics.

[30] *Fólk* 'people', for instance, is formally singular in spite of its plural semantics, *dyr* 'door' and *buxur* 'trouses' are formally plural in spite of their singular semantics, etc. Similarly, the same underlying 'case semantics' can be expressed by more than one morphological case, and one and the same case may express several types of 'case semantics'. See Thráinsson (1983) on number and Sigurðsson (2003) on case.

[31] Interestingly, *n* itself seems to be silent in Icelandic as well as in English.

[32] Recall that the reason why predicative NPs take part in case agreement only is that they have their own gender and number.

[33] Presumably, this also applies to number, but we need not take a stand on that. The point I'm making is valid, even if this should hold for only gender.

[34] That individual languages *can* link semantics with agreement is unquestionable, as evidenced by examples like (29) above. Language in general 'utilizes' morphological markers to the extent they are available (subject to conventionalization), but the 'expressive power' of language is nonetheless independent of such markers (Sigurðsson 2004c). Much the same applies to other 'lexical material' – it is in general useful rather than indispensible.

[35] See e.g. Sigurðsson (1990-1991, 1996, 2002, 2004a, 2005a), Taraldsen (1995), Boeckx (2000, 2003a, 2003b), Chomsky (2000), Anagnostopoulou (2003), Schütze 2003, López (2003), Rivero (2004).

[36] In addition, at least the plain dative is or comprises many 'sub-datives', in a sense, that is, it expresses or, rather, 'translates' many different sorts of structural and semantic relations (see Sigurðsson 2003). Distinguishing between different datives is not a particularly abstract or radical move, as for instance underscored by the fact that the Germanic dative is historically an amalgam of the Proto-Indo-European dative, ablative, instrumental and locative.

[37] As is well known, Icelandic also has quirky accusatives and genitives, i.e. accusatives and genitives that function as subjects (Zaenen, Maling and Thráinsson 1985, Sigurðsson 1989, Jónsson 1996 and many others). For unknown reasons, however, only quirky datives may ever combine with nominative objects, that is, the questions under discussion do not arise for the other quirky cases. Hence, I leave them out of the discussion.

[38] The b-examples are also ungrammatical with a default 3SG verb form, *hefur*.

[39] The formulation in (59) is sightly simplifying, though. As illustrated in Sigurðsson (1996), clauses with 1st and 2nd person nominative objects are more sharply ungrammatical with unambiguous agreement than with relaxed agreement (being least ungrammatical with default 3SG verb forms when these happen to be homophonous with what would be an agreeing 1st or 2nd person singular form (in certain paradigms); see also the discussion in Schütze 2003).

[40] In contrast, I do not get any intervention effect in the constructions with third person nominatives discussed by Holmberg and Hróarsdóttir (2003), that is, my intuitions differ from those of Hróarsdóttir reported in that paper.

[41] In a sense, there is a built in look-ahead in the derivation, such that any clause must contain clausal features of this sort.

[42] Non-matching of this sort leads to a crash in the absence of an active intervener. However, there is no general ban on non-matching, that is, features that cannot be reached by any appropriate probe may remain unvalued, hence get a default value (singular in the case of number). This seems to be what is going on in the minority variety of Icelandic where the finite verb shows up in a default 3SG form in clauses like 'her likes.3SG the

horses', discussed by Thráinsson (1979) and many since. For these speakers, the quirky dative may be analyzed as being 'extra quirky' in not only having an extra feature matching $Pers_S$ but also an extra feature matching Num_S. Thus, the dative matches all the Pers and Num probes of the clause, hence the person and number features of the nominative remain unvalued = default, and the fintie verb shows up in the default 3SG.

[43] There are implicational hierarchies between many features and feature values, so the feature in question might be distinct from person but nonetheless a matcher of $Pers_S$. A point of view feature (cf. Sigurðsson 2004b) is a potential candidate, but I shall not pursue the issue here.

[44] This is quite natural if the transformation of θ_1 and θ_2 into Nom, Acc, etc. does not take place until in PF (as argued Sigurðsson 2003, 2005a, 2005b). For ease of exposition, however, I simplify the description here, formulating it as if the case transformation took place already in syntax.

[45] This is the reason why agreement controlling predicative DPs in examples like (50)/(60) above do not raise.

[46] I am simplifying here by not taking any CP features into account.

[47] Again, it must be pointed out that I'm not taking any CP features into account here. V2 effects in e.g. the Germanic languages may be analyzed as involving at least one more instance of roll-up movement, where a phonolocally silent feature of the CP domain is the attracting 'head' (cf. the analysis of the CP domain in Sigurðsson 2004b).

[48] But for a syntactic analysis of a different kind of 'N-movement', see e.g. Julien (2005).

[49] In both agreement types, however, the copying applies to grammatical features, not phonetic ones. – For a different view, where finite verb agreement morphology (steps g and h in (73)) is claimed to be a clitic-like element, raised in syntax, see Platzack (2004).

[50] Plausibly, all assimilation phenomena are signs of compositionality. So-called 'binding' sounds or morphemes in compounds may be thought of as such signs or 'agreement markers' below the word-level (for instance -*u*- in Swedish *gat-**u**-kök* 'street-**u**-kitchen').

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