Context-linked grammar

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Language is context free in the sense that it builds well-formed structures like "ideas sleep" and "ghosts live" (NP+VP) without regard to meaning and specific contexts (Chomsky 1957). However, it is also context sensitive in the sense that it makes use of linguistic objects such as personal pronouns and other indexical expressions that cannot have any reference unless they are embedded in some specific context. This (apparent) context-free/context-sensitive paradox is the focus of this essay. It pursues the idea that phases in the sense of Chomsky 2001 and related work – the minimal computational domains of language – are equipped with silent linking edge features that enable syntax to compute elements of a phase in relation to other phases, thereby also enabling narrow syntax to link to context and build the structures of broad syntax. Evidence for the edge linkers comes from overt phase internal effects, including person and tense marking, person shift of pronouns (indexical shift), the syntax of inclusiveness, and gender agreement across clause (phase) boundaries. Scrutiny of these phenomena suggests that nominal reference is exhaustively syntactic. Syntax therefore communicates with context, but it does so indirectly, via silent edge linkers. The inherent silence of these linkers, in turn, is the reason why the context-syntax relation has been such an opaque problem in linguistics and philosophy.

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1. Introduction: The context-free/context-sensitive puzzle

Language is full of apparent paradoxes. One such is that language, in a broad sense, is both an individual-internal "tool for thought" (Jerison 1973:55) and an individual-external "tool for communication". These aspects of language are sometimes referred to as I-language (internal, individual language) and E-language (external language). See Chomsky 1986a and much related work. Another apparent paradox, related to the first one, is that grammar is both context free and context sensitive. This second issue is the focus of this essay.

Grammar is context free and autonomous in the sense that it freely builds structures that are correctly formed without regard to meaning and specific contexts. Chomsky famously illustrated this point in *Syntactic Structures* (1957:15) with the examples in (1) and (2).

(1)   Colorless green ideas sleep furiously.
(2)   *Furiously sleep ideas green colorless.

Any speaker of English knows that (2) is anomalous whereas (1) is properly constructed, although it is nonsensical in most contexts. Templates such as NP–VP ("ideas sleep"), AP–NP ("green ideas"), P–NP ("of ideas") yield correctly formed structures regardless of language use in other respects. Chomsky stated: "I think that we are forced to conclude that

grammar is autonomous and independent of meaning" (1957:17). This statement is sometimes referred to as the "autonomy of syntax thesis", not by Chomsky himself but by some of his critics (see Chomsky 1986b, Stemmer 1999 / Chomsky 1999). However, "autonomy of syntax" in the narrow sense just explicated is not a "thesis" – it is a fact. Syntax is also automatized and unconscious to the individual, much as for instance locomotion. Speakers do not semantically (or otherwise) plan basic operations and relations of syntax, such as Agree, Merge (e.g., NP+VP), embedding, and so on, any more than they plan the actions of their muscles and skeletons when they walk.

The metaphor is not perfect but it is useful and we can take it one step further: At some level of cognition speakers *do* plan what they are going to say (or write, for that matter) much as they can plan to walk from location A to B, even though they are oblivious of the physiological actions of their body parts in the process in both cases. Thus, when introducing Paul and Ann to each other I can opt for saying either (3) or (4) (among many things).

(3)   Have you met Paul?
(4)   Have you met Ann?

The pronoun *you* refers to Ann in (3) but to Paul in (4), and it is clear that I am conscious of which of these two options I am taking.

Grammar is thus not only context free and automatized. It is also context sensitive and planned. It is sometimes assumed that the context-sensitive part of the coin is due to pragmatics (see the discussion in Stemmer 1999 / Chomsky 1999). However, if that was true, "pragmatics" would be extremely powerful, not only controlling insertion of lexical items like the pronoun *you* in (3) and (4) but also grammatical processes, such as binding and agreement. It is pragmatics when I say "It is cold in here" and someone else closes the window, but pragmatics does not control clause-internal grammatical forms. I could just as well have said "I'm cold" or only shivered my shoulders.

In order to better understand this apparent context-free/context-sensitive paradox we need to distinguish between *narrow syntax* (in the sense of Chomsky 1981, 1995 and related work) and grammar in a broader and more general sense – call it *broad syntax* (following Chomsky 1999:399).[1] Narrow syntax applies "the simplest possible mode of recursive generation: an operation that takes two objects … and forms from them a new object" (Berwick & Chomsky 2011:30). This operation, Merge, can be iterated without bounds,

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[1] I will try to keep the discussion as free of theory-dependent assumptions as possible, but, I am nevertheless forced to assume that the reader is familiar with general syntax and central parts of the minimalist program (Chomsky 1995, 2001, 2008 and related work). Among the notions I assume to be familiar to the reader is the X-bar theoretic approach to syntactic structure, the assumption that any full clause contains a vP-layer, a TP-layer and a CP-layer, the phase notion, Agree, probe and goal, and the distinction between narrow syntax and the interfaces.

generating infinitely many hierarchic expressions. Merge is either "external" or "internal". External Merge simply takes one object or element and adds it to another, for example a determiner like the definite article to a noun, Det+N, as in *the book*. Internal Merge, also called movement, moves a copy of a syntactic entity X from within a structure Y, commonly to its left edge (Chomsky 2008:140). Thus, in a passive clause like *Mary was elected*, the subject *Mary* is externally merged with the verb *elect* as its object ([was elected Mary]) and subsequently moved to the subject position by Internal Merge, leaving behind a silent copy ([Mary was elected ~~Mary~~]).

Being such a minimal and mechanic operation Merge as such is conceivably blind to context. However, the use of the pronoun *you* is not. It is not sufficient to just merge *you* with some structure in narrow syntax. Somehow, broad syntax must see to it that pronouns and other context-sensitive items and categories fit their context. A central question linguistics needs to address is:

(5)   How do narrow and broad syntax differ and how do they interact so as to render basically context-free syntactic structures context sensitive and applicable in relation to clause-external categories, such as the "speaker" and the "speaker's" location in space and time?

This is the question I will be pursuing here. It is orthogonal (and superordinate) to the distinction between I- and E-language. It is a question about grammar at all levels, internal as well as external. The fact that the pronoun *you* is context sensitive whereas the template or constellation NP–VP is context free, in the relevant sense, is a fact of I-language and thought as well as of E-language and language use.

Pronouns throw a particularly bright light on the context sensitivity of language, so large parts of this essay center around pronouns (see also Sigurðsson 2014a). Section 2 discusses some of the features and the computational processes that link clausal structures to context, where context is understood in a broad sense as the deictic speech act context and/or the linguistic context (either in superordinate syntactic structures or in preceding discourse). The features in question are silent phase *edge linkers* (with overt phase-internal effects), including "speaker" and "hearer" features. The analysis yields a syntactic approach to the feature content of personal pronouns, whereas their reference is analyzed in terms of control under context scanning. In section 3 I explain why I believe the features and matching processes involved are syntactic rather than "non-syntactically semantic" or lexical. Section 4 underpins the general approach by developing an analysis of inclusiveness and of the syntactic interplay between the number category and the speaker/hearer categories in the first person plural pronoun. In section 5 I develop further arguments that pronominal reference boils down to control (identity matching) under context scanning, also presenting evidence that pronominal gender is a feature of syntax, copied under control. Section 6 concludes the

essay, suggesting that the contribution of narrow syntax and Universal Grammar to language is limited to initial lexical "cells" (to be propagated and filled with content as language grows in the individual), plus the computational mechanisms (Agree and Internal Merge) that enable structure building and relational thought, while other subsystems of mind expand syntax by contributing other parts of broad syntax, including the control strategies that yield reference.

2. Speech event features and the syntactic computation

Indexical or deictic items include personal pronouns (*I*, *you*, *she*, etc.), demonstrative pronouns (*this*, *that*, etc.), and certain local and temporal adverbials and adjectives (*here*, *now*, *presently*, etc.). It is obvious that items of this sort, often called *indexicals*, have context-dependent readings, as seen for the 2nd person pronoun *you* in (3) and (4) and as further illustrated by the fact that a sentence like "I saw you there yesterday" has infinitely many interpretations depending on who addresses whom when and where. Indexicality – the context dependency of indexicals – is often treated as a semantic/pragmatic issue (Kaplan 1989, Schlenker 2003, Anand 2006, Y. Huang 2007, among many). However, given the generative view of language (Chomsky 1957 onward), adopted here, the problems raised by indexicals are syntactic as well as semantic. On this view, the syntactic derivation proceeds in a single cycle, feeding both interfaces: the sensory-motoric (sound/sign) interface and the conceptual-intentional (semantic) interface. Thus, given this view, syntax is a prerequisite for semantic interpretation (see section 3), and hence a (partly) syntactic analysis of indexicality must be developed.

That I can get somebody to close the window by saying "It is cold in here" (or by shivering my shoulders) is a fact of communication rather than a linguistic or a grammatical fact. Indexicality is a very different phenomenon as it is a fundamental property of grammar and not just a matter of language use. Probably the best known attempt to account structurally for "grammatical context dependency" is the *performative hypothesis*, saying that any declarative matrix clause is embedded under a silent performative clause, roughly, "I hereby say to you". On this view a regular clause like "Prices slumped" takes the basic form "[~~I hereby say to you~~] Prices slumped" (see Ross 1970:224).

Stating the performative hypothesis in terms of whole clauses leads to problems (see Newmeyer 1980:213ff.), one of them being infinite regress (the silent performative clause should itself be introduced by another silent performative clause, and so on, ad infinitum). However, the central idea that indexicality is a grammatical phenomenon seems to be essentially correct and a number of attempts to develop structural approaches to it have accordingly seen the light of the day over the years, including Bianchi 2003, 2006, Tenny & Speas 2003, Tenny 2006, Sigurðsson 2004b and subsequent work, Giorgi 2010, Sundaresan 2012, Martín & Hinzen 2014.

Common to most of these attempts is the thesis that clausal structure contains context-related speech act or speech event categories ("speech event" is here adapted from Bianchi 2003; see also Sigurðsson 2004b). Call this the *Speech Event Thesis*. It basically restates the same insight as that of Ross 1970 but it is currently inspired by the approach of the Italian cartographic school (Luigi Rizzi, Guglielmo Cinque and others). Rizzi 1997 famously "opened up" the clausal left periphery, suggesting that the clausal head C splits into Force, Top(ic)*, Foc(us), and Fin(iteness). These features reflect or relate to discourse properties. It is plausible to assume that they are located close to the context, in the C-domain, and given the general idea of a rich C-domain it is also natural to assume that it contains even more speech event features, above all a "speaker" feature. How to proceed from there, though, is not obvious (see Bianchi 2010 for a discussion of some of the issues involved). The following three questions are central:

(6) a. What are the speech event features – what is their inventory?
     b. How do they materialize – can they be lexicalized – do they project?
     c. How do they interact with overt clause-internal categories?

There is a tension between the need to account for the complexity of the context-clause relation in terms of a rich C-domain and the poverty of overt evidence in favor of such an approach. Any reasoning about silent or invisible elements is bound to be minimalistic. That is: One must assume as few such elements as possible (everything else being equal). The "speaker" category, in some sense, is inescapable, and so are the "now" and "here" of the speaker (the *origo* in Bühler 1934); evidently, the "hearer" category also belongs here.[2] These are basic inherent features of the speech event. The technical notions applied for these categories in previous work (e.g., Sigurðsson 2004b, 2010, 2011a, 2014b) are the *logophoric agent*, *logophoric patient*, the time or *tense of speech* (corresponding to the speech time in Reichenbach 1947), and the *location of speech* (the latter two corresponding to the Fin category in Rizzi 1997). I list these inescapable categories of the speech event in (7).

(7) a. The speaker and hearer categories; that is, the logophoric agent, Λ_A, and the logophoric patient, Λ_P
     b. The time or tense of speech, T_S, and the location of speech, L_S ($T_S + L_S = $ Fin)

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[2] The hearer category might seem to be the odd man out here if language evolved as a "tool of thought" rather than as a "tool of communication", the externalized communicative form of language being ancillary to internal language of thought (as repeatedly argued by Chomsky; see, e.g., Berwick & Chomsky 2011, Chomsky 2013; see further Hinzen 2013 on language as a "tool of thought"). However, the speaker and the hearer categories are arguably categories of broad rather than narrow syntax (see section 6).

The tree diagram in (8) sketches a picture of the clausal left periphery, the C-domain; I abstract away from Foc(us) and specifiers and other X-bar theoretic notions.

(8)　　　　CP
　　　　　／＼
　　　Force　＼
　　　　　　Top
　　　　　　　＼
　　　　　　　Λ_A
　　　　　　　　＼
　　　　　　　　Λ_P
　　　　　　　　　＼
　　　　　　　　　T_S　　　TP
　　　　　　　　　　＼
　　　　　　　　　　L_S
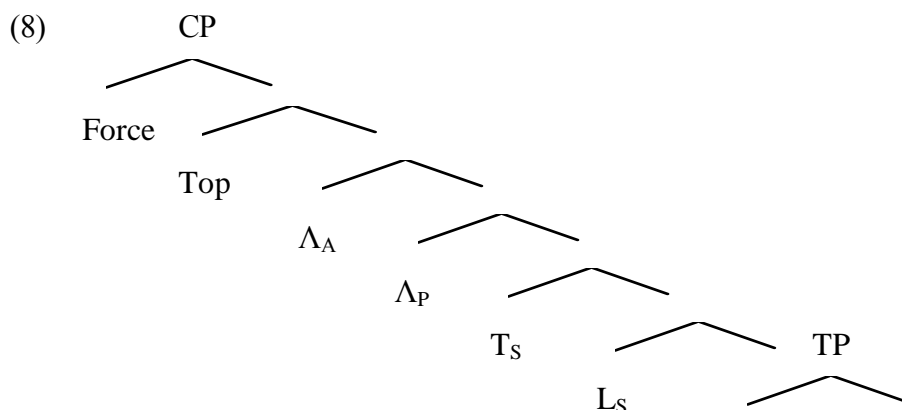
This is too simple a picture of the clausal left periphery; for example, it disregards the high mood and modality features argued for in Cinque 1999 (see also, e.g., Tenny 2000, 2006), the jussive category in Zanuttini et al. 2012, and the different Top feature types discussed in the cartography literature (see, e.g., Frascarelli 2007, Sigurðsson 2011a). However, trying to keep the discussion as trimmed as possible, I will not discuss categories that I cannot detail about here and that are not absolutely necessary for my present purposes. As regards the speech participant features, others have pursued more elaborated approaches (see, e.g., Noyer 1992, Harley & Ritter 2002, Nevins 2008; see also Tenny 2006 for a rather different approach). However, a simple analysis in terms of the speaker and hearer features – in tandem with a general Person feature – yields the needed and the desirable results; see (15)–(16) (cf. also Bobaljik 2008a).

The picture drawn in (8), then, provides a partial answer to question (6a), about the inventory of speech event features. The question in (6b), in turn, is how these categories materialize. The speech event features have overt clause-internal effects or correlates (tense marking, person marking, etc.), but they are non-lexicalized themselves. Expressions, for instance Ross' example "Prices slumped", do not have overt markers of the speaker or the hearer or of the time and location of utterance – any claim to the opposite (see, e.g., Ritter & Wiltscko 2009, Giorgi 2010:65 ff.; cf. Tenny 2006, Hill 2007) is bound to be on the wrong track. This seems to be generally true of edge linkers, including, e.g., the Top and the Foc features. They may trigger movement into their vicinity, at the edge, but they do so without being lexicalized themselves (see the general approach in Sigurðsson 2010 and the analyses in Sigurðsson 2011a, 2012).

For the sake of argument, assume, for instance, that English had speaker and hearer markers, say, *sheme* and *sheyou*. Instead of "Prices slumped", "I trust you" and "I want to prove to you that I trust you" John would thus say (9), (10) and (11) to Mary:

(9)   Sheme sheyou prices slumped.

(10)   Sheme sheyou I trust you.

(11)   Sheme sheyou I want to prove to you that sheme sheyou I trust you.

Similarly, one can imagine "here" and "now" markers like "shemehere", and so on, yielding, e.g., "Sheme sheyou shemehere shemenow prices slumped", rather than (9); phonological "erosion" ("grammaticalization") could make this a bit smoother over time, say like "Shemyuheno prices slumped". This is imaginable, but language does not work this way. Rather, speech event features and other edge linkers are themselves silent by necessity even though they have overt clause-internal effects. Thus, to take just one example, the time or tense of speech, T_S, enters into a relation with the event time of a predicate (Reichenbach 1947), and this relation may be spelled out by a tense affix like English *-ed* or *-s*, but T_S itself is not independently lexicalized as, say, a clause-initial *now*. Edge linkers are below the level of materialization, like atoms or quarks (Sigurðsson 2011b), and can thus not be independently spelled out – they have no meaning on their own even though they build meaningful relations with other elements (see further shortly).

The diagram in (8) is incomplete, but it is also overly specific. As the C-features are below the level of materialization their order is undecidable. Instead of (8), if one is not interested in or preoccupied with decomposing the C-domain, one might assume the simple and widely adopted picture of clausal structure in (12), where C, T [and v] are "cover terms for a richer array of functional categories" (Chomsky 2001:43, n. 8).

(12)   CP
        ╱   ╲
       ╱   TP
      C   ╱   ╲
          T   vP
               ╱   ╲
              v   VP
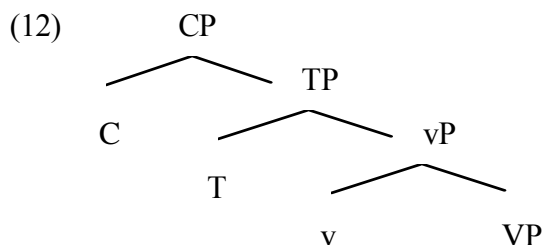
The CP-layer is the context-sensitive domain of the clause, vP is the propositional content domain, and TP is the grammatical domain containing grammatical features like Person, Number and Tense that must be interpreted in relation to both context and propositional content.

Regardless of whether we assume the overly order-specified picture in (8) or the radically feature-underspecified one in (12), the set of unordered C features can be partly defined as in (13).

(13)   C ⊇ {Force, Top, Λ_A, Λ_P, T_S, L_S, …}

These features are syntactic heads in the sense that they are separate probes, but they are not heads in the sense of traditional X-bar theory, as they do not project separately, instead being bundled up when they have been "used up" (fully matched), thus projecting jointly to CP. They can also be jointly lexicalized or represented by a single item, such as the complementizer *that* in subordinate clauses ("*that* John left") or the finite verb in verb-second main clauses ("When *did* John leave?"). Commonly, they are not lexically represented at all, as in regular English declarative main clauses ("John left").
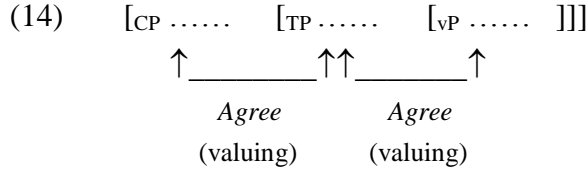
CP and vP are phases in Chomsky 2008 and related work, TP is not. Noun phrases (at least full DPs) are arguably phases too (see Chomsky 2007:25–26), presumably also some prepositional phrases. A phase is a minimal computational domain, sent off to the interfaces by spell-out when it has been fully computed in relation to higher phases (there is thus a built in procrastination in spell-out by at least one phase up). The features in (13) are situated at the left edge of the CP-phase and may thus be referred to as edge linkers (Sigurðsson 2011a), mediating between phase-internal categories and the context of the phase, in a way to be explicated shortly, thus enabling full computation (hence full interpretation) of the phase. Any phase must be equipped with edge linkers, but the vP-edge is "slimmer" than the CP-edge, for example lacking the Jussive feature and other Force features. Presumably, v/edge linkers also enter either an Agree or a selection relation with some of the C/edge linkers of their CPs (cf. Landau 2008), but I put that aside here.

The question of what other features than the ones in (13) belong to the sets of speech event features and edge linkers is an interesting one, but what matters here is that all the features in (13) are both speech event features and edge linkers. I assume that all syntactic speech event features are edge linkers, whereas some edge linkers may not be speech event features. Edge linkers function to link phase-internal elements to features outside of the immediate phase, including, but not being limited to speech features. As will be briefly discussed in section 5, (abstract) gender is an edge linker in noun phrases even in cases where it is presumably not a speech event feature.

The overt evidence for the existence of edge linkers is necessarily invisible at the phase edge and must instead be sought deeper inside the phase – somewhat similarly as gravity is not directly observable by measurements of gravity as such (however that would be carried out) but only indirectly by bending of light by the Sun's gravity. Discussing indirect and displaced evidence is never easy in any field of inquiry. For simplicity I will largely limit the following discussion to the C/edge and some of the C/edge linkers, above all the Λ-features.

Question (6c) was about how the speech event features interact with overt clause internal categories (and the question extends to edge linkers in general). The key insight here, generally missed in the linguistic and philosophical literature, is that they often do *not* interact directly with lexical items such as the pronouns *I* and *you*. That is, lexical categories commonly (perhaps generally) enter an indirect Agree relation with silent features of the C-domain, via features of the grammatical T-domain. The interpretation of any clause is subject

to matching relations between contentful items that are merged in the v-domain (nouns, verbs, etc.), grammatical categories such as Person, Number and Tense in the T-domain, and the context-sensitive features in the C-domain. This general computation scheme is sketched in (14).

(14) $[_{CP} \ldots\ldots \quad [_{TP} \ldots\ldots \quad [_{vP} \ldots\ldots \quad]]]$
        ↑_____↑↑_____↑
            Agree   *Agree*
         (valuing)   (valuing)

Consider the computation of Person. It involves elements from all three domains. That is: an argument NP (to be assigned some theta role) in the v-domain, a grammatical Person (Pn) category in the T-domain, and speech event categories (Λ_A, etc.) in the C-domain.[3] The syntactic derivation is a bottom-up process ("right-to-left" in simplifying linear pictures like (14)). It starts out by merger of vP-internal categories (nouns, etc.), then adding TP internal categories like Tense and Person. As soon as these grammatical categories have been merged they probe vP-internal categories (Sigurðsson & Holmberg 2008), establishing a valuing Agree relation. Thus, an NP must be valued as either a "personal" or a "non-personal" argument, NP_{+Pn} or NP_{-Pn} (inanimate and indefinite NPs normally being "non-personal"). In the next cycle up, C-categories are merged, probing TP-internal elements, establishing a secondary Agree relation. Thus, a "personal" NP, NP_{+Pn}, must be negatively or positively valued in relation to the Λ-features (whereas "non-personal" NPs, NP_{-Pn}, remain unvalued in relation to the speaker/hearer categories).

This double computation of Person is sketched in (15) and (16) (where the arrow reads 'gets valued as').
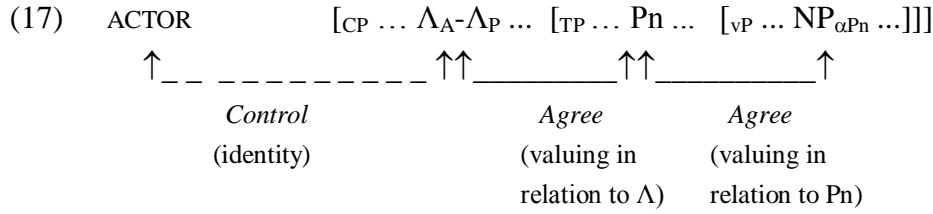
(15) The first cycle TP-vP relation:

   $NP_{\alpha Pn}$ → NP_{+Pn} or NP_{-Pn}

(16) The second cycle CP-TP relation:
   a1. NP_{+Pn} → $NP_{+Pn/+\Lambda A, -\Lambda P}$ =   1st person by computation
   a2. NP_{+Pn} → $NP_{+Pn/-\Lambda A, +\Lambda P}$ =   2nd person by computation
   a3. NP_{+Pn} → $NP_{+Pn/-\Lambda A, -\Lambda P}$ =   3rd person by computation
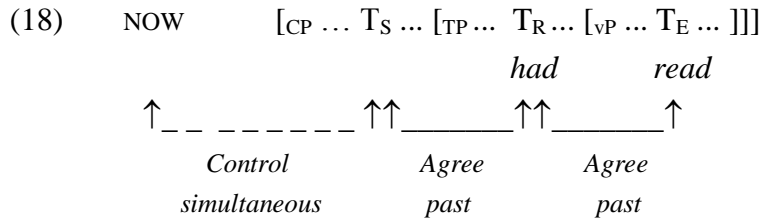   b. NP_{-Pn}:   =   3rd person by default   ("no person")

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[3] I use "NP" as a general notation for noun phrases when the distinction between NPs and DPs is irrelevant for my purposes. NPs are embedded into DPs, the latter having a left edge D-domain (parallel to the C-domain in CPs), hosting functional categories, including an abstract gender feature (as briefly discussed in section 5).

In addition, a fully computed NP_{+Pn} stands in a referential identity relation to some clause external 'actor'. The whole process is sketched in (17).

(17)   ACTOR $[_{CP} \dots \Lambda_A\text{-}\Lambda_P \dots [_{TP} \dots Pn \dots [_{vP} \dots NP_{\alpha Pn} \dots]]]$
          ↑_ _ _ _ _ _ _ _ _ _ _ ↑↑_____↑↑_____↑
                  Control   *Agree*   *Agree*
                 (identity)   (valuing in   (valuing in
                                      relation to Λ)   relation to Pn)

As this illustrates, Agree establishes a clause internal valuing relation (valuing *a* in relation to *b*), whereas control is an identity relation between a clause (more generally a phase) and its context, where "context" is either the deictic speech act context or the linguistic context (in preceding discourse *or* in a superordinate clause). While Agree is a narrow syntax operation, control is arguably a broad syntax relation (see section 6). The interaction of these two different types of processes/relations yields the final interpretation of the structure at the interfaces.

The scheme in (14) applies generally and hence, for example, to Tense as well as to Person computation. Thus, the *past-in-the-past* reading of a past perfect clause like "Hans had read the book" arises by valuing Agree relations between the event time of reading, T_E, the reference time of the past tense form *had*, T_R, and the speech time, T_S, which in turn is set as identical (simultaneous) with the "speaker now" under control. This is sketched in (18).

(18)   NOW $[_{CP} \dots T_S \dots [_{TP} \dots T_R \dots [_{vP} \dots T_E \dots]]]$
                                        had   *read*
          ↑_ _ _ _ _ _ _ ↑↑_____↑↑_____↑
              Control   *Agree*   *Agree*
             simultaneous   past   past

There are some differences between Tense and Person valuation, though, but I will not digress, focusing on nominal categories here (but see Sigurðsson 2014b on Tense computation; (18) is from there). What matters here is the parallel between Tense and Person. Extra-syntactic factors like ACTOR in (17) and NOW in (18) cannot directly access anything in the CP-phase except its left edge, and, similarly, left edge elements like Λ and T_S have only indirect access to the vP-phase, via elements of the grammatical T-domain.[4] – If there was anything like direct access from the context across phase edges we would expect pragmatics to directly control phase-internal morphology and grammatical processes such as overt agreement, contrary to fact.

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[4] This is somewhat different from the context-CP relation, though, as TPs are not phases or at least not strong phases. This is an interesting technical issue, but I put it aside here.

The scheme in (14) and the processes and structures in (15)–(18) provide a partial answer to question (6c), about how the speech event features interact with clause internal categories. This is a very general answer, disregarding many important categories of grammar. Thus, as argued in Sigurðsson & Holmberg 2008, the TP-domain of the clause minimally contains a Number head, **Nr**, in addition to Pn and T_R (or simply T), their relative order being Pn > Nr > T_R (Nr thus being lower or "more initial" in the structure than Pn). In languages with the simplest number system of only plural and non-plural number (setting more complex systems aside), plural NPs get valued as +Nr, non-plural as –Nr, subsequently matching Pn positively or negatively as sketched in (16) and (17). – Person, Number and Gender are commonly referred to as *phi*-features (ϕ-features); see Harbour et al. 2008. I will return to the interaction of Nr and Pn in section 4 and discuss Gender in section 5.

The mainstream generativist view (Chomsky 1995 and related work) is that the T complex of the clause (Pn, Nr, T_R, … = T_ϕ in Chomsky's notation) is valued under Agree with lower lexical categories, merged in the v-domain. Thus, abstracting away from Tense and Mood, an Icelandic clause like *Þið sváfuð* 'you.2PL slept.2PL' is supposed to have roughly the underlying structure [C … T_ϕ … v … sleep you.2PL …], where T_ϕ (or, rather, the C-T_ϕ complex) is a probe, establishing an Agree relation with the goal 'you.2PL', the finite verb *sváfuð* thus winding up agreeing in person and number with the 2PL subject *þið*. I adopt a similar approach with the crucial difference that Agree is an up-down valuing relation, noun phrases for example getting their number and person values under Agree with higher syntactic categories, such as the Nr and Pn categories of the (C-)T_ϕ-complex – not the other way around. As argued above, and as we will see further evidence of in subsequent sections, pronouns do not have any lexical content and must thus be ϕ-valued in relation to higher syntactic categories, including Nr, Pn and the logophoric speech event features.[5]

3. Why is this not "just" semantic or lexical?

A number of issues arise. First, why is this not "just" semantics? The best answer, I believe, is that it is both semantics and syntax. At any rate, it is not "non-syntactic" semantics. In one of his talks (unpublished to my knowledge) Chomsky stated "To me, syntax *is* semantics". And in a reply where he discussed the "autonomy of syntax thesis" he said: "One reason why it is difficult to discuss the alleged thesis is that the term "semantics" is commonly used to refer to

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[5] On this approach, morphological PF agreement is distinct from (albeit indirectly related to) syntactic Agree, as argued in previous work (e.g., Sigurðsson 2004a, 2006, Sigurðsson & Holmberg 2008; see also Bobaljik 2008b). The verb agreement in the Icelandic *Þið sváfuð* 'you.2PL slept.2PL' is a shallow PF reflex of a more abstract Agree relation between the verb and the subject pronoun *þið* (and it is secondary in relation to the syntactic ϕ-valuation of the pronoun). Thus, inasmuch as speakers of English accept clauses like *The girls is here* (see Henry 1995), they arguably have abstract syntactic Agree, only lacking overt PF agreement.

what I think should properly be called "syntax"" (Chomsky 1986b:363). This stance is consistent with the view long held by Chomsky that syntax feeds mapping to the interfaces.

Even though syntax operates with features and establishes relations that get interpreted at the semantic interface, the syntactic derivation is not semantically driven (in a non-syntactic sense of the notion "semantics"). That is: it is not driven or controlled by semantic goals or objectives. If it were, we would expect grammar to show only limited variation across languages, if any, contrary to fact.[6] Individual syntactic features, such as Λ_A in the C-domain and Pn in the T-domain can be discussed in general non-technical terms such as "speaker" and "person", but they do not get any interpretation until at the semantic (conceptual-intentional) interface, when they have been fully syntactically computed in relation to other features in their domain. For example, Λ_A does not get any interpretation all by itself. What gets interpreted is an NP that positively or negatively matches Pn, yielding a relation NP_{+Pn} or NP_{-Pn}, NP_{+Pn} in turn matching Λ_A and Λ_P, yielding a secondary relation, e.g., $NP_{+Pn/+\Lambda A,-\Lambda P}$. The outcome is a double matching relation between elements of the C-domain and of the v-domain, via elements of the grammatical T-domain. The double relation $NP_{+Pn/+\Lambda A,-\Lambda P}$ will eventually be expressed by a lexical item like English *I* in the post-syntactic externalization process.[7]

The syntax of pronouns cannot be relegated to lexical semantics. There is no lexical or descriptive content in elements like English *I* and *you*, not even in a fixed context (as in Kaplan 1989 and much related work on indexicality). In particular, the pronoun *I* does not mean 'the speaker (of the present clause or utterance)', nor does the pronoun *you* mean 'the hearer/addressee (of the present clause or utterance)'. This is evidenced by *indexical shift*, as in the embedded Norwegian V2 clause in (19) (from Julien 2012:15) and the Persian clause in (20).[8]

(19) Ho   sa   til   meg at   **du**   kan   ikkje gjera dette   aleine.
      she   said to   me   that you.SG can   not   do   this   alone
      a.   'She said to me that you cannot do this on your own.'
      b.   'She said to me that **I** could not do this on my own.'

(20) Ali   be   Sara goft [ke   **man tora** doost   daram].
      Ali   to   Sara said that I   you   friend have.1SG
      a.   'Ali told Sara that I like you.'
      b.   'Ali told Sara that **he** likes **her**.'

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[6] Any approach that advocates that syntax is somehow semantically driven (in a non-syntactic sense of "semantics") must come up with a theory of the semantics → syntax interface and also of why such a model should not yield more or less identical grammars.

[7] Abstracting away from imposters in the sense of Collins & Postal 2012; see also Wood & E. Sigurðsson 2013.

[8] From Sigurðsson 2004b (based on pers. comm. with Gh. Karimi Doostan).

Indexical shift or person shift of this sort is commonly discussed as if it was a lexical property of specific pronouns in special languages or constructions (see, e.g., Anand & Nevins 2004, Anand 2006, Schlenker 2011), but it is a general syntactic phenomenon, found widely across languages and constructions, for example in regular direct speech and also in "hidden quotations", often introduced by shift markers such as English *like* ("And he's like I don't care"). It is clear that quotations have properties that set them apart from regular clauses (see, e.g., Banfield 1982, Schlenker 2011), and it is also clear that not all types of person shift examples are quotations (Anand 2006:80 ff.), but the mechanism of person shift as such is the same in quotations as in other person shift contexts.

What is going on in person shift readings, like the ones in (19b) and (20b), is that the values of the logophoric features in the embedded CP/vP-phases, Λ_A and Λ_P, are shifted under control, so as to refer to overt antecedents in the matrix clause instead of the participants in the actual speech event.[9] The pronouns themselves are not shifted. Just as in regular unshifted readings they refer or relate to their local Λ_A and Λ_P features. – The "meaning" of the pronouns *I* and *you* is exhaustively syntactic: $NP_{+Pn/+\Lambda A, -\Lambda P}$ and $NP_{+Pn/-\Lambda A, +\Lambda P}$ respectively, as stated in (16).

Reference in natural language is only ever linguistic, mediated by the computational machinery of grammar. That is, there is no such thing as "direct reference" in language. In particular, words do not have any constant reference across different clauses and situations ("worlds", if one likes). The reference of an expression depends on who addresses whom in what context. When I say "I heard of Noam Chomsky in the 1960s" and "I just read a new paper by Noam Chomsky" I am talking about two different "Noam Chomskys". I may intend to talk about "one and the same" individual and imagine that I am doing so but I am not. The first individual is the one I heard of in the 1960s and the second one is the author of the paper I just read; it is as simple as that. That the two occurrences of the noun phrase "Noam Chomsky" have distinct reference may not accord with traditional views in philosophy, but it is a fact. Language commonly makes this explicit by adding epithets, like "young", etc., as in "the young Noam Chomsky" (which should lead to a contradiction if "Noam Chomsky" had constant reference across contexts and worlds). *Psychic continuity*, or the sense thereof, is an inherent property of the donation of words, but reference is not. Humans use expressions, linguistic and non-linguistic, to communicate about real as well as imaginary worlds, but for language as such it is entirely irrelevant whether words refer to some "objects". We can easily think and talk about things that (presumably) have no reference to entities in our mind-external world: *alpha*, *elf*, *ghost*, *Martian*, *square root*, *Twin Earth*, etc. This ability to think

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[9] Usually, the Λ-features in vP and its locally dominating CP co-shift, but both represented speech and thought and self talk provide evidence that this need not be the case (contra Anand & Nevins 2004). See Banfield 1982, Sigurðsson 1990, Holmberg 2010.

and talk about imaginary as well as "real" entities and worlds, regardless of "actual reference and existence", is a fundamental and a distinctive property of humans and of human language.[10]

These remarks apply to alleged *lexical* reference. *Syntactic* reference is a very different thing. Definite expressions *do* refer to antecedents in either the linguistic or the deictic context, as discussed and demonstrated for 3rd person expressions in Martin & Hinzen 2014. However, even the reference of 3rd person expressions must be mediated by edge linkers. That is, any definite argument positively matches at least one edge linker (Sigurðsson 2011a:282). Thus, as we have seen, the first person pronoun positively matches Λ_A and a second person pronoun positively matches Λ_P. A definite third person argument negatively matches both Λ_A and Λ_P (as stated in (16)), but it positively matches Top (see Frascarelli 2007, Sigurðsson 2011a), thereby complying with the requirement that any definite argument positively match at least one edge linker.

Language makes use of words and how words gain currency, in the I-language of an individual as well as in the E-language of a linguistic community, is an intriguing question, worth pursuing. Whatever the answer to that question may be, the person value of a definite expression is syntactically computed and its reference is decided under control across phase boundaries, as just outlined. The relations so established are independent of lexical "material".

4. More on words – in particular *we*

Full-fledged words (lexical items) are commonly taken to be syntactic units – input into syntactic operations. That is certainly true at some shallow derivational stage or level in broad syntax, but it is also true that words are built in syntax at a deeper level. A lexical item like plural *tables* consists of at least the root √TABLE, a silent n-category that turns this root into the noun *table* (Marantz 1997), and the plural marker *-s*. That is, *tables* is the outcome of syntactic processes that combine √ and n, and the resulting $[_N\sqrt{-n}]$ with a number category or head, Nr, yielding $[_N \text{TABLE-n}]_{+Nr}$ at the semantic interface and (a phonetic form of) *tables* at the phonological interface. Normally, syntax furthermore embeds the so built noun into an NP shell, yielding the structure $[_{NP} \ldots [_N \text{TABLE-n}] \ldots]_{+Nr}$.[11]

The pronouns *I* and *you* differ from *table(s)* in that they do not have any lexical root content. The same is true of plural personal pronouns, which show some remarkable syntactic

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[10] This is the very reason why we constantly shape and reshape the external world (by scientific discoveries, etc.) in accordance with changes in our mind-internal world.

[11] Phonological adjustment rules see to it that the plural marker winds up on the noun rather than the NP as a whole in English (as opposed to e.g. German and Icelandic, where modifiers of various sorts show plural marking).

but non-lexical properties. I will briefly discuss this for the pronoun *we* in the following (basically parallel observations apply to plural *you*). It differs from *I* in only two ways: First, it can positively match both the speaker and the hearer features (yielding hearer inclusive readings); second, it positively matches Nr, but this yields a plural event participant reading and not a "plural person" reading (indicating that Pn and Nr are distinct syntactic elements, as in Sigurðsson & Holmberg 2008).

It is a well-known but a long standing puzzle that *we* is not the plural of *I* in the sense that it does not mean 'many speakers' (see Boas 1911, Benveniste 1966, Lyons 1968, Bobaljik 2008a). Even though this simple fact has remained a puzzle it is unsurprising, given that the pronoun *I* does not have a lexical content like "the speaker", instead denoting the double syntactic relation $NP_{+Pn/+\Lambda A, \ -\Lambda P}$. If anything, the Λ_A-feature can be conceived of as perceiver/center of consciousness/self, thus resisting pluralization, "because there can never be more than one self" (Boas 1911:39). Another intriguing (and commonly unnoticed) fact of *we* is that it does not necessarily refer to or include the "speaker". The prevailing understanding has been that it has the meaning 'speaker + X' (see, e.g., Cysouw 2003, Siewierska 2004), but that is inaccurate as suggested by sentences such as the ones in (21).

(21) a.   We have lived in Europe for at least 40,000 years.
     b.   We finally defeated Napoleon at Waterloo.

These sentences are not about the speaker but about abstract sets of humans ("selfs") with whom the speaker identifies himself or herself. That is, for example: "We finally defeated Napoleon at Waterloo" stated in London the 18th of June 2015 does not mean anything like 'I and a bunch of politicians and soldiers defeated Napoleon at Waterloo (two centuries ago)'. Even ordinary usage of *we* as in "We sold the house" is not primarily about the speaker but about a set of event participants including or somehow relating to the speaker (according to the speaker's own assessment). Crucially, the clause "We sold the house" has no "plural person", instead having only the plural meaning that there were two or more SELLERS (plus the meaning that the sellers relate to or include the speaker). This is a regular event participant plural, the same one as in "The owners sold the house."

Recall that the narrow syntactic derivation proceeds bottom-up, starting out by merger of vP-internal categories, for example an NP representing a thematic role (θ-role), e.g., the role SELLER. As the NP *we* does not have any lexical root content it enters the derivation as [$_{NP}$ __], its θ-role later getting interpreted at the semantic interface, on the basis of the lexical verb *sell* (see Wood 2012). The next step in the derivation (relevant here) is positive matching of the Nr category in the T-domain, yielding [$_{NP}$ __]$_{+Nr}$.[12] Subsequently, the so marked plural NP

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[12] [$_{NP}$ __]$_{+Nr}$ = [$_{NrP}$ [$_{NP}$ __] if Nr projects, but I abstain from discussing the question of whether Nr and Pn project (they are in any event separate probes, see Sigurðsson & Holmberg 2008).

positively matches the higher Pn category, yielding $[_{NP} [\underline{\quad}]_{+Nr}]_{+Pn}$, this "personal" NP finally matching the logophoric speech event features, yielding, for example, $[_{NP} [[\underline{\quad}]_{+Nr}]_{+Pn}]_{+\Lambda A}$.

Many languages make overt distinctions between inclusive and exclusive readings of the first person plural pronoun (see Cysouw 2003). These readings are generally available even in languages that do not overtly mark them. Thus, inclusive English *we* relates or refers to both the speaker and the hearer, whereas exclusive *we* relates or refers to the speaker and somebody else but excludes the hearer. So, when I say to somebody "We should go to the movies," I am (normally) using *we* inclusively, including my hearer(s) (and potentially someone else too) in the set of people referred to by *we*, but, when I say "We have decided to help you," I am using *we* exclusively, excluding my hearer(s) from its reference set. – *We* is normally valued as $+\Lambda_A$ (and $+Nr$). If it is also valued as $-\Lambda_P$ it is hearer exclusive, whereas it is hearer inclusive if it is valued as $+\Lambda_A$ and $+\Lambda_P$.

The logophoric features do not enter the derivation until at the phase edge, whereas argument NPs are merged vP-internally and are thus present throughout the derivation. It follows that the "speaker" or Λ_A is not the core of *we* – *we* does not start out including Λ_A. Accordingly, the meaning of *we* is not 'speaker + X', for example 'I and a bunch of politicians and soldiers', but a set of event participants (a θ-interpreted NP) relating or referring to $+\Lambda_A$ and either $+\Lambda_P$ or $-\Lambda_P$, by virtue of the argument NP entering a syntactic Agree (valuing) relation with the Λ-features.

Much as the meaning of *I*, then, the meaning of *we* is exhaustively syntactic. This extends to regular 2nd and 3rd person pronouns, as will be briefly illustrated for some 3rd person pronouns in the next section.

5. On control and context linking

In this section I discuss control and context linking and illustrate that gender agreement across phase boundaries throws an interesting light on these phenomena. I start out by asking: What is the linguistic reality behind punctuation in writing? That is not as banal a question as it might seem to be. Consider the following examples:

(22) a. Ann is strong. She will win the fight.
     b. Ann is so strong that she will win the fight.
     c. Ann is strong enough to win the fight.

In all three examples there are two events or eventualities, that of someone being strong and that of someone winning the fight, and in all three cases the (sole or the unmarked) reading is that the winner is the one who is said to be strong. In other words, the subject of the "being strong predicate" and the subject of the "win the fight predicate" are coreferential (in the

readings intended here). This is indicated by co-indexing in traditional generative grammar (Chomsky 1981 and related work), as illustrated in (23).

(23) a. Ann_i is strong. [$_{CP}$ She_i will win the fight].
      b. Ann_i is so strong [$_{CP}$ that she_i will win the fight].
      c. Ann_i strong enough [$_{CP}$ PRO_i to win the fight].

The bracketed structures are all assumed to be CPs with either an overt or a silent subject (*She*/*she* vs. PRO), referring to the subject in the preceding main clause. The reference of PRO is attributed to control, whereas the reference of the subordinate clause subject *she* in (23b) is analyzed in terms of binding and the reference of the matrix clause subject *She* in (23a) is commonly taken to be extra-syntactic, even accidental (see, e.g., Zwart 2002).

Binding in examples like (23b) and control in examples like (23c) is sensitive to structural restrictions, many of which can be at least partly analyzed in terms of "hierarchical closeness" (invoking technical notions like c-command, binding domain, etc.; the literature on this is copious, see, e.g., Chomsky 1981, Landau 2000). Binding between separate main clauses, as in (23a), is less heavily constrained, but it is definitely not coincidental.

Kayne (2002) develops an intriguing unifying approach to the different types in (23), under which pronouns (including PRO) and their antecedents (e.g., *Ann* in (23)) are merged as a single constituent ([Ann – She], etc.), their displaced binding or control relation being established by movement of the antecedent, stranding the pronoun/PRO. The relevant derivational stage of the examples in (23), prior to the antecedent movement, is sketched in (24).

(24) a.   is strong. [Ann – She] will win the fight.
      b.   is so strong that [Ann – she] will win the fight.
      c.   is strong enough [Ann – PRO] to win the fight.

Kayne suggests that "there is no accidental coreference in the familiar sense" (2002:138), and about examples like (23a)/(24a) he says: "When a pronoun successfully takes a phrase in a preceding sentence as its antecedent, the two sentences in question form a single syntactic entity, akin to coordination" (2002:138–139).

Antecedent movement of this sort would be extremely powerful – Super Move – allowing movement out of islands and sideward movement, as discussed by Kayne; for a somewhat more restricted approach, not assuming movement out of islands, see Hornstein 1999 and much related work. It is doubtful that the analytical gains of Super Move compensate for the concomitant loss in predictive power and stringency of movement theory. However, it seems to be essentially correct that "there is no accidental coreference" and it is

also a fact that coreference holds across considerable (linear and structural) distance, as exemplified in (25).

(25) **Ann** is strong. There will be a fight tomorrow. People will be coming from all over to watch it. I am sure **she** will win even though her opponent is tough.

The same is seen for inanimate referents, where there is no "support" from marked features, such as plural number and feminine or masculine gender, as illustrated in (26).

(26) **The book** had been there all summer. However, the summer was sunny and warm and a lot of family and friends came to visit us. Finally, in late September I remembered that **it** was there and started reading **it**.

It is evident that grammar applies some powerful identity matching process, operating across considerable distance, including domains that are arguably not structurally related in narrow syntax. The process in question is *control under context scanning* (see Sigurðsson 2011a). Control (of PRO) in the traditional sense is the same phenomenon as control across finite clause boundaries, as in (23a)–(23b) (see also the approach in Landau 2004, 2008). Somewhat similarly as landscape, control contexts are variably "rough to cross", depending on the amount of grammatical (structural, featural) material between the antecedent and the controlled category, but the control process itself (identity matching under successful context scanning) is plausibly the same in all cases.[13]

Phase edges function like antennas, downloading information from the context, as we have seen for speech event features. The information so downloaded is not just pure reference. This is evidenced by nominal agreement in languages like Icelandic, in particular gender agreement (of the once common Indo-European type, still partly visible in, e.g., most Slavic and Romance languages). Any noun and pronoun in this language triggers case, number and gender agreement of its determiners and modifiers and also of floating quantifiers and adjectival and participial predicates, as partly illustrated in (27).

(27) a. Kaflar**nir**   voru   les**nir**.
        chapters-the.M.PL.NOM   were   read.M.PL.NOM
     b. Bækur**nar**   voru   les**nar**.
        books-the.F.PL.NOM   were   read.F.PL.NOM
     c. Ég skilaði   bók**inni**   óles**inni**.

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[13] There is a lot more to be said about various types of control, such as obligatory vs. non-obligatory control and exhaustive vs. partial control. The present approach presupposes that the differences between these types boil down to "landscape differences".

I returned book-the.F.SG.DAT unread.F.SG.DAT

A well-known property of grammatical gender, illustrated by these facts, is that it is commonly not semantically related. However, perhaps the most intriguing aspect of the Icelandic and other similar agreement systems (see Corbett 1991) is contextually based pronominal gender agreement across clause boundaries. Example (28) illustrates the phenomenon; for simplicity, case and number are not glossed.

(28) Ólafur₁ segir að mynd**in**ⱼ sé skemmtileg
　　　Olaf　　says that movie-the.F　is　fun.F
　　　og　að　hann₁ hafi séð **hana**ⱼ/*hannⱼ/*þaðⱼ **alla**/*allan/*allt.
　　　and that he　　has　seen her='it'.F/*M/*N　all.F/*M/*N
　　　'Olaf says that the movie is fun and that he has seen it all.'

Similarly, in Icelandic, both occurrences of *it* in (26) obligatorily translate as the feminine third person pronoun (*hún*.NOM and *hana*.ACC), as their antecedent translates as the feminine *bókin* 'the book'. Pronouns interpreted as 'he', 'she', etc., when referring to natural gender nouns, are thus used to also refer to DPs without natural gender semantics, such as 'book', 'movie' and 'chapter'. In such cases, the pronouns have referential force but no gender semantics.
　　　Now compare (28) and (29).

(29) Ólafur₁ segir að María ⱼ sé skemmtileg
　　　Olaf　　says that Mary　is　fun.F
　　　og　að　hann₁ hafi séð **hana**ⱼ/*hannⱼ/*þaðⱼ í gær.
　　　and that he　　has　seen her.F/*M/*N　　　in yesterday
　　　'Olaf says that Mary is fun and that he saw her yesterday.'

This raises the intriguing question of how the local derivation of a sentence like *hann hafi séð* **hana**, 'he has seen her', can "know" that the feminine pronoun *hana* sometimes has and sometimes does not have female gender semantics. The answer is that it does not nor does it "care". The problem evaporates if the D-edge of the DP phase where the pronoun is merged contains an abstract Gender category that silently copies the formal gender feature of the pronoun's antecedent under control.
　　　Personal pronouns are void of lexical root content and are thus not "lexical" items in the usual sense. What is merged as an object in a clause like *hann hafi séð* **hana** is a DP-shell, [DP __], to be filled with local θ-information (from the verb *séð* in this case) and more distant grammatical information, for example a gender feature of an antecedent, copied under control,

either from discourse or from the deictic context.[14] Gender, in turn, is a functional (parametric) feature (Kanye 2006). More specifically, it is an edge linker, **G_α** at the D-edge: [$_{DP}$ … **G_α** … [$_{NP}$ … [$_N \sqrt{}$**-n**] …]]. The value of G_α may be decided in two different ways. First, if NP contains a lexical root, such as French feminine *mer* 'sea' or Italian masculine *mare* 'sea' (Kayne 2006) the noun containing the root ([$_N \sqrt{}$-n]), enters a DP-internal Agree relation with G_α (French: "[$_N \sqrt{}$mer-n] agrees with G_{FEM}", etc.). Second, if NP does not contain any lexical root, like pronouns (including PRO and *pro*), the value of G_α is decided under control either by an overt or a covert antecedent.

Deictic (i.e., non-anaphoric) gender control is seen at work in Icelandic examples like the following ones:

(30)　a.　Ég　gerði　þetta　**sjálfur/sjálf**/*sjálft.
　　　　　I　did　this　self.M/F/*NT
　　　　　'I did this myself.'

　　　b.　Það　var　skemmtilegt　að　　gera　þetta　**sjálfur/sjálf**/*sjálft.
　　　　　it.NT　was　fun.NT　　　to　PRO　do　this　self.M/F/*NT
　　　　　'It was fun to do this myself.'

First and second person pronouns in Icelandic do not have any overt gender distinctions, nevertheless triggering obligatory gender agreement. In (30a) the masculine form *sjálfur* is obligatory for a male speaker, while the feminine form *sjálf* is for a female speaker. Thus, the pronoun *ég* 'I' (and other 1st and 2nd person pronouns) must be interpreted in morphology as silently either masculine or feminine, triggering gender agreement in the same manner as 3rd person pronouns and NPs. In a parallel fashion, morphology must interpret PRO as specified for some particular gender, even in the absence of an overt controller. In examples like (30b) masculine PRO and PRO-triggered masculine predicate agreement is obligatory for a male speaker, whereas feminine PRO and feminine agreement is obligatory for a female speaker. –Notice that examples of this sort cannot be analyzed in terms of antecedent movement in the spirit of Kayne 2002 (or Hornstein 1999, etc.).

Obligatory gender control in examples like (30) is quite distinct from default gender markings in certain non-obligatory control structures. It plausibly involves gender valuation of the speaker feature (Λ_A) at the C-edge ($\Lambda_{A/FEM}$ etc.), the gendered Λ_A feature, in turn,

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[14] Insertion of audible, visible or tactile signs (expressing overt categories like gender) in the externalization process is a separate phenomenon. See Wood 2012 and the references cited there. For a different approach, see Kratzer 2009. However, notice that the mechanism of gender control or gender binding of pronouns is independent of pronoun use in other respects (it is for instance independent of the problems raised by bound variable readings discussed by Kratzer).

passing the gender value down to *ég* 'I' and PRO under Agree, *ég* and PRO subsequently triggering regular gender agreement of *sjálf-*.[15]

These observations, then, yield the conclusion that the edge of the DP-phase containing a gendered pronoun or PRO has an edge linker, G_α, that gets valued under Agree with a C-edge linker, which in turn has been assigned a gender value under control by an overt or conceived antecedent. Spell-out of the pronoun must thus be procrastinated until the phase containing the pronoun has accessed and downloaded the relevant gender information from its antecedent via its local C-edge, often across many clauses. Commonly, however, the pronoun refers to the closest "plausible" antecedent, as illustrated in (31).

(31) Myndin$_i$　　var　skemmtileg.　Bókin$_k$　　var　líka　skemmtileg.
　　　movie.the.F　was　fun.F　　　　　book.the.F　was　also　fun
　　　Ég　sá　hana$_{k/*i}$　(hérna)　í　gær.
　　　I　saw　it.F　　(here)　in　yesterday
　　　'The movie was fun. The book was fun too. I saw it [the book/*the film] (here) yesterday.'

The pronoun *hana* may of course refer to feminine *myndin*, as in (28), but it is blocked from doing so across another "equivalent" antecedent, such as feminine *bókin* in (31). Other factors than just closeness or minimality may affect "plausibility of antecedenthood" (as, for instance, evidenced by simple examples like "Mary$_i$ saw Ann but *she$_i$* did not see John" as compared to "Mary$_i$ saw Ann$_k$ but *she$_k$* did not see her$_i$"). However, the relevant point here is that once a phase edge has downloaded the gender feature of a plausible antecedent the phase is closed for further or distinct gender assignment. This is parallel to the control of other phase edge features, for example the speaker and hearer features. All phase edge features must generally be fully specified under control/context scanning for the phase to be interpretable at the interfaces.[16] However, the scanning domain of the features is variably large. The speaker and hearer are commonly globally accessible whereas gender is normally copied from the structurally and linearly closest plausible antecedent.

Like Person and Number, then, Gender is a syntactic and not a lexical category, after all. It seems that languages make a parametric choice in PF/broad syntax as to whether their DPs have a gender edge linker or not.[17] If they have this parameter positively set, the normal

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[15] Plural *við* 'we' and *þið* 'you' also trigger obligatory gender agreement (*sjálfir*.M.PL/*sjálfar*.F.PL/*sjálf*.NT.PL, where the neuter is used in the case of mixed genders), and the same is true of plural PRO ("It was fun to do this ourselves=*sjálfir/sjálfar/sjálf*"). Gender agreement is thus more complicated in the plural than in the singular (involving gender valuation of Λ_P, and Top at the C-edge, in addition to Λ_A).

[16] Structures with bound variable readings of pronouns are an exception – their logophoric edge features being unlinked to context (Sigurðsson 2011a, 2014a).

[17] Parameters are arguably confined to the externalization (broad syntax/PF) component of language.

solution a language opts for is that any DP must be gender specified, regardless of where its gender comes from. In the case of pronominal gender it is contextually copied under control (either anaphorically or deictically). In the case of "lexical" noun gender, there is an Agree relation between the n-head or the $[_N\sqrt{-n}]$ compound and the gender edge linker.[18]

6. Concluding remarks

Lexical items like *table*, *we*, *I* and *you* are not primitives of language. They represent a bundle of more atomic, mostly structural features, including content-related features like the person and number features, Pn, Nr, and context related-features like the speaker and hearer features, Λ_A, Λ_P (gender taking an intermediate position, being either content- or context-related). It is an intriguing question where these features come from. Are they provided by Universal Grammar and thereby part of narrow syntax right from the start of language growth in the individual? Or do they come from some other subsystems of mind that interact and cooperate with narrow syntax in building broad syntax? This is obviously not an easy question – it cannot be answered with any certainty at the present stage of the language sciences. However, let me conclude by briefly sketching the picture I find plausible (based on, e.g., Chomsky 2001, 2007, 2008, Hauser et al. 2002, Hinzen 2013, Berwick & Chomsky 2011, and some of my previous work, including Sigurðsson 2011a, 2011b).

In his work since the late 1980s and the early 1990s Chomsky has developed an approach where the computational machinery of syntax has become more and more minimalistic. Thus, Hauser et al. (2002:1569) argue that recursion (Agree and Internal Merge) is "the only uniquely human component of the faculty of language". In contrast, Chomsky has not simplified or pruned his approach to the lexicon, assuming that the faculty of language "specifies the features **F** that are available to fix each particular language L" and that each language makes a "one-time selection $[F_L]$ from **F**" (2001:10; see also 2007:6). While it seems plausible to me that lexical and structural language features are universal in the sense that they are universally available to natural languages, I do not believe that they are provided by Universal Grammar as such.[19] Rather, the gift of Universal Grammar to any healthy newborn is initial narrow syntax which later enters into interaction and cooperation with other subsystems of mind as the individual matures, including a conceptual department or a "concept mine" (Sigurðsson 2011b) and departments that yield or contribute to the

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[18] More is of course needed to account for variably complex gender systems (presumably a parametric hierarchy in PF or broad syntax, roughly in the spirit of Biberauer et al.2010), as well as for many a gender peculiarity (hybríd nouns, etc., see Corbett 1991). There is also much more to be said about the structure of the DP (see, e.g., Julien 2005) and about its left edge features. I must set these issues aside here.

[19] "Being universal" does not entail "belonging to UG"; aspects and parts of the human mind/body that are not specifically linguistic may obviously be universal to humans.

development of theory of mind (cf. Astington & Jenkins 1999, Crow 2004, de Villiers 2007). The contribution of Universal Grammar is the CP-internal computational machinery (narrow syntax), including Internal Merge and Agree, enabling recursion and valuation of elements in relation to other elements – the basics of relational thought. The contribution of other subsystems is (i) "lexical content", provided by a conceptual department, and (ii) identity matching across phase boundaries under control/context scanning.[20] As the individual matures, these UG-external ingredients get "syntacticized" by narrow syntax, this molding process yielding broad syntax, a full-fledged natural language grammar. Identity matching is evidently not species specific, presumably not either all parts or aspects of the conceptual department, whereas Agree and Internal Merge, hence relational thought, arguably are.

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[20] The presentation here is slightly simplified. UG provides the initial building blocks or "cells" (referred to as Root Zero and Feature Zero in Sigurðsson 2011b), to be propagated and filled with content from the concept mine. Words or lexical items are thus the result of "combined efforts" of UG and the concept mine and should hence be absent in biological systems that lack access to UG. That seems to be born out. To the extent that symbols occur in animal communication they differ from words in having "direct reference" rather than syntactic reference, symptomatic of words in human language (see the discussion in section 3).

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