

Introduction: The syntax and interpretation of Person features

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1. The topic

The papers in this special issue are about the role that the syntax and semantics of person plays in connecting propositions to the context of utterance. First person pronouns have long been famous for making such a connection by referring reliably to the speaker in the context in which they are uttered, such that we know whoever utters a first person pronoun is referring to himself or herself. Third person pronouns do not have such an immediate connection with whoever it is they designate, since one requires real world knowledge to know who the pronoun *he* is supposed to pick out in a sentence like *He left*. By contrast, if one of us were to utter *I left*, no knowledge outside of the context is required to know who has been asserted to have left. Most of the papers in this collection explore how the difference between first and third person pronouns in this respect serves as a model for, or a model of, how discourse information about time, modality and reference connects contexts of utterance to syntactic and semantic form.

These explorations touch on a rich set of theoretical and empirical issues that surround interface relations between syntax, semantics and discourse, including the relation of time and modality to person, the relation between contexts of utterance and reported speech (and propositional attitudes), the relation of indexical reference to bound variable readings and bound variable syntax, and the possibility of decomposing of person features into more atomic features, and then the mapping of these features onto syntactic tree geometry and agreement relations.

All of the papers explore the question of what sort of relationship indexical pronouns have to other aspects of meaning that are influenced by the context of speech, particularly tense, modality, or, for some contributors, perspective. Every paper explores how either bound variable phenomena or agreement (or both) provide evidence for the role of syntax in the nature and distribution of contextual features, primarily, but not exclusively, person marking.

Agreement of features plays an important role in most of the papers. For example, Sigurdsson distinguishes person features from other phi-features (gender and number) in order to exploit a parallelism he sees between the Reichenbachian tense system and the relation of person to event participation. Just as the Reichenbachian tense system relates the context of speech to the time of an event by way of a reference time, Sigurdsson proposes that the logophoric roles of those involved in the speech event, as encoded in lambda features (for speaker and addressee), and the theta-roles involved in an event (agent, patient) are mediated by person features. He then argues for a version of the cartographic approach to the left periphery of clauses such that successively merged features induce agreement matching within the constituents they form. Di Domenico also ties the interpretation of finiteness and person to the context of speech and also argues for a cartographic mapping of the relevant features onto an inflectional (placement) layer distinguishing person features from other phi-features. Speas draws evidential marking into the discussion of contextual features by arguing that the variety and distribution of evidential particles is predictable from the feature geometry for person proposed by Harley and Ritter (2002), in opposition to a more cartographic approach she has argued for elsewhere. Her exploration of the relations of evidentials to the interpretation of modality leads her to argue that these particles express agreement with arguments that limit the modal base - conceived as a world variable that can be manipulated or bound by operators. Schlenker's system is more heavily based on the mechanism of variable binding, but he also considers (and largely rejects) a theory that exploits a person feature to distinguish embedded and matrix instantiations of what he takes to be person.

One rather interesting point of convergence for these papers is that several of them use bound variable anaphora as evidence of a syntactic relation. Speas, for example, argues that the world variable she introduces is syntactic in nature because it participates in bound variable relations. Schlenker argues that person is always anaphoric because first person pronouns can be bound variables (following Heim 1991). Safir argues against Schlenker's view on the grounds that first person pronouns do not *require* bound variable readings or antecedents in discourse, that is, the absence of variable-binding is used as evidence that the relation in question is potentially asyntactic.

The distribution of bound variable phenomena plays a particularly important role in a controversy that both divides and unifies the

various positions our contributors defend, namely, the question of whether or not the perspective of the agent of a propositional attitude should be understood as a shifted first person. In other words, the question is whether the analogy between the speaker of the utterance and the agent of an attitude should be modeled in theory as the same sorts of relations. All the authors that discuss this relation treat the agent of an attitude as standing in relation to an operator that binds a variable of some sort in the propositional complement of the propositional attitude verb (see Schlenker's coordinates, which Safir adapts, Speas' world variable, and Sigurdsson's point of view variable), but Schlenker and Sigurdsson support the analogy and Safir rejects it (as does Speas, in passing, based on earlier work of hers). The appeal of Schlenker's position, for example, is that it maximizes parallels between the relation of utterance contexts to the 'coordinates' of propositional attitudes, such that coordinates of a propositional attitude operator each bind variables determining person, time and modality. In rejecting the analogy as misleading, Safir proposes a different mechanism for relating conversational participants to the context of speech, the constant function (more like Kaplan's, 1989 direct reference), and argues that constant functions generalize to other phenomena, such as the interpretation of English generic *one* and proximate marking in the languages that have it.

Another interesting point of convergence, perhaps one less surprising, is that almost all the papers make a distinction between conversational participants and those not in the conversation, such that first and second person are grouped apart from third person in the feature system (Di Domenico, Sigurdsson, Safir and Speas). Speas, for example, uses a version of this distinction, the proposal of Harley and Ritter (2002), to model the class of possible evidential morphemes and to predict crosslinguistic implicational universals concerning their distribution. Di Domenico and Sigurdsson differ from the others in that they are not inclined to follow Benveniste's (1966) suggestion that third person *is*, in fact, unmarked for person. On the other hand, Safir suggests that there are indexical pronouns, such as English generic *one*, that behave as third person pronouns for the purposes of agreement, but count as indexical (speaker and addressee inclusive) nonetheless.

Although there are other issues where the positions of our contributors are aligned or opposed, one more deserves to be singled out before this part of our overview concludes, namely, *de se* interpretation. Our authors differ somewhat on what counts as a *de se* interpretation, but what is at stake is the cognitive relation that a reported

speaker or propositional attitude agent has to an instance of self-reference. The issue concerns the degree of awareness or unmistakability on the part of the agent of the attitude that she has referred to herself. Empirically at issue is the difference between control relations, overt forms in positions where PRO is also possible, and contexts where an overt pronoun is required, such as the triplet *Alice expected PRO to be the winner*, *Alice expected herself to be the winner*, and *Alice expected that she would be the winner* (we are only interested here in interpretations where *she=Alice*). It is often argued (e.g., Chierchia 1989) that the control relation requires that Alice be aware of, or incapable of mistaking, that she herself is the winner. The other two sentences permit an anaphoric interpretation where Alice is looking at the scoreboard, sees the total points for each player without seeing the names attached to them, and she expects that the person with the highest score will be the winner, but she is unaware that that person is her. The ambiguity of the anaphoric relation with respect to what Alice knows is treated as a version of shifted first person reference by Schlenker, at least for logophoricity, but not by Safir, and they also disagree as to whether the control contrast arises from the same interpretive ambiguity as that which holds for the pronoun in the tensed complement sentence. Speas touches on the latter dispute, but also extends *de se* interpretive distinctions to aspects of anaphora in modality and tense interpretation, as a means of extending her analysis of the world variable she proposes.

In highlighting some of the issues that seem to permit comparisons, however, we do not intend to diminish the individual preoccupations of the essays collected here. Most of our contributors did not write their papers in order to compare their views to others, but rather they have set themselves certain problems which they have sought to solve using the theoretical and analytic tools and empirical argumentation that they find most promising. In order to help direct readers to the papers and preoccupations that they may be most interested in, each essay is briefly summarized in what follows.

2. *The contributions*

In “Placed, Non-Placed, and Anaphorically Placed Expressions” **Elisa di Domenico** argues that the inflectional categories of Tense and Person implement a fundamental property of human language, Displaced Reference: our ability to talk about someone/something that is remote from the situation in which we are speaking.

In languages with overt inflection for Tense and Person, the following generalizations hold:

- (a) Tense specification is strongly correlated with Person specification (cf. Greenberg's Universal 30, and Guéron & Hoekstra 1992);
- (b) an independent declarative sentence must contain one specification of Tense (cf. Enç 1987, Hornstein 1990 a.o.).

Both these generalisations follow from the basic hypothesis (1):

- (1) Displaced Reference is implemented in human language by connecting a Person feature and a Tense feature of the Infl layer.

Tense and Person define departure from/coincidence with the two relevant coordinates of the speech event: its time, and the participants set [speaker and hearer(s)]. An independent sentence in human language must be related to the speech event in both coordinates. Since it is possible to have non identity in time and identity in participants (and vice-versa), Tense and Person are not projected under the same functional head. Importantly, Tense specification is dependent upon Person specification: it is only by connecting Tense to a specified Person (encoding a [speaker and hearer(s)] set) that an arbitrary instant in the non-deictic time dimension becomes “now”, the anchoring point of deictic tense. This set of projections is labelled “Placement layer”.

Focussing on the syntactic organization of person, Di Domenico takes into account three factors: subjects, subject positions and verbal agreement morphology. The structure of these elements appears variegated and their matching does not show a one-to-one correspondence.

Di Domenico proposes the following featural characterization of different types of subject:

- | | | | | |
|-----|------------------------------|------------------------------|------------------------------|-----------------|
| (2) | a. 1 st Pers Pron | b. 2 nd Pers Pron | c. 3 rd Pers Pron | d. Non-pron DPs |
| | IN | IN | OUT Person | OUT NonPers |
| | Person | Person | Person | (Definiteness) |
| | Speaker | Addressee | (Animate) | Number |
| | (Augmented) | (Augmented) | (Augmented) | (Animate) |

First and second person pronouns are characterized by an IN feature, which expresses their coincidence with the speech event (since they denote the speech event participants). All the other (non-participant) subjects have an OUT feature, signalling non-coincidence with the speech event. Among these, there is a further distinc-

tion between OUT/Person subjects, corresponding to 3rd person pronouns, and OUT/NonPerson subjects, which correspond to non-pronominal DPs. This distinction is meant to capture the fact that third person pronouns are indexical and lack a fixed reference just like first and second person pronouns, and unlike non-pronominal DPs (like e.g. a proper name).

The feature [augmented] on [Person]-specified subjects expresses the fact that ‘plurality’ of pronouns does not entail true Number (i.e. a plurality of instances of entities of the same kind). The plural forms have rather the ‘associative’ meaning: I/you/he plus someone else. (Note that this assumption also holds for third person pronouns, contrary to Benveniste 1966, Kayne 2000, Wechsler 2002, but in accordance with Sigurdsson, this volume: see below).

Di Domenico argues that the Placement Layer includes three distinct projections that host the different types of subjects, in the spirit of the “cartographic approach” (Cinque 2002, Rizzi 2004, Belletti to appear):

(3)	IN	OUT/Person	OUT/Non Person
	1/2 Pers pron	3 Pers pron	Non-pron DPs

Evidence in support of this classification of subjects (2) and subject positions (3) comes from Modern Hebrew (Shlonsky 2000) and from Northern Italian dialects (Poletto 2000, Manzini & Savoia 2001): these show a different syntactic position for first and second person subject pronouns vs. third person pronouns vs. non-pronominal DPs.

Finally, verbal agreement morphology does not directly reproduce the featural array in (2) and (3) but rather makes use of (at least):

- a unique (“3rd Person”) suffix to match all OUT subjects and positions (whether Person or Non Person);
- a unique (plural) suffix to match both Augmented and Plural subjects.

Interestingly, despite these reduced morphological distinctions, in a number of languages (e.g. Belfast English) verbal agreement is syntactically sensitive to the distinctions in (2) and (3), and in particular, to the distinction between third person pronouns and non-pronominal DPs; an analysis is proposed based on the difference between person agreement and number agreement.

In the second part of the paper, Di Domenico turns to imperative clauses. By a detailed survey of real vs. suppletive imperatives in

- (ii) Non- Placed Expressions: Imperative Clauses; Matrix Infinitivals; Root Infinitives
- (iii) Anaphorically Placed Expressions: Embedded Infinitives; Subjunctive Clauses

In “Person, Context, and Perspective”, **Ken Safir** argues that 1st and 2nd person pronouns are reduced definite descriptions restricted by constant functions that pick out the speaker and the addressee of the utterance context, respectively. Constant functions have two distinguishing properties:

- I. they cannot be “shifted”, i.e. applied to contexts other than the utterance context;
- II. they do not have syntactically constrained scope, since they do not exploit syntactic operator binding.

Thus, Safir argues against the assimilation of first and second person to logophoricity and *de se* phenomena, both found in reported propositional attitude contexts (contra Schlenker 2003, this volume).

That the agent of an utterance context should not be conflated with the agent/experiencer of a propositional attitude is shown by the comparison of (5a) and (5b):

- (5) a. Sampras thought he could defeat me.
- b. Sampras thought, “I can defeat him.”

In (5a), the matrix subject’s propositional attitude is reported without a context shift (the first person pronoun refers to the utterance agent). In (5b), the same attitude is reported by shifting the context in the direct quote: as a result, the original utterance agent is no longer the value of the first person constant function, and he must be referred to by third person in the quote. Thus, in (5a) first person is non-shifted, in (5b) the whole context is shifted but the constant function associated with first person still picks out the agent of the newly introduced context (compare Sigurdsson, this volume).

Safir then argues that *de se* and logophoric pronouns cannot be assimilated to a shifted first person. A pronoun is typically regarded as *de se* if the agent of the propositional attitude is purported to use it to identify the value that corresponds to the identity he consciously regards himself to have. *De se* readings have been taken to be obligatorily associated with controlled PRO (cf. Chierchia 1989, Schlenker 2003 a.o.) and with pronouns which are morphologically logophoric (Schlenker 2003 and Adésolá 2001, 2004). Safir argues that this is not necessarily the case, but to the extent that the correlation holds, the

de se reading cannot be assimilated to a shifted first person statement: (6a) is not equivalent to (6b).

- (6) a. Oedipus wanted/hoped to commit incest.
 b. Oedipus had a desire/hope, “I will commit incest.”

Logophoric pronouns in languages like Ewe or Yoruba occur in the complement clause to a Propositional Attitude (PA) verb and refer to the holder or source of the propositional attitude (in some cases, it can refer to another argument of the matrix PA verb, e.g. an addressee), as in (7b). A logophoric behaviour is also found with long distance anaphors in e.g. Icelandic (see Huang 2000 and Cole *et al.* 2001 for general discussion).

- (7) a. Ama gblo be yè-do nku nyonuvi hi dze yè gblo dyi
 b. Ama say that yè set eye girl wh stay yè side on
 “Ama said that *she* remembered the girl who stayed with *her*.”

Safir argues that in contrast to first and second person pronouns, which rely on asyntactic constant functions, *de se* readings and logophoric pronouns have resort to a syntactic operator-binding strategy. Building on Koopman & Sportiche (1989) and Baker (1998), he proposes that the PA verb licenses an attitudinal operator that has scope over the propositional complement; the attitudinal operator is directly generated in C or in Spec-CP, and it is bound by an argument of the PA verb (usually the agent). The analysis is illustrated in (8):

- (8) a. John thinks he is smart.
 b. [_{IP} John [_{VP} thinks [_{CP} AO_x [_{IP} x is smart]]]] (where agent value for $x=John$)

The attitudinal operator (AO) binds the subject of *is smart* and the value for the operator is provided by the agent of the PA verb. Logophoric pronouns are morphologically scope sensitive to binding by an attitudinal operator. The presence of a syntactic AO operator in Spec,CP (or C) explains the restriction to (a subset of) PA complement clauses, the cross-linguistically common occurrence of a special complementizer form in the logophoric PA complement, and also the possibility of A' binding of a logophoric pronoun at an unbounded distance, as in (7) above.

A similar analysis, with A' binding by an attitudinal operator generated in CP, is then proposed for *de se* readings of both logophoric pronouns and Icelandic long-distance reflexives.

This approach goes against Schlenker's (2003) analysis of logophoric pronouns as shifted first person indexicals, similar to the Amharic first person pronoun, which receives a "shifted" (logophoric) interpretation in an embedded PA clause (cp. (11) below, and also Speas 2000 on Navajo). Safir objects that if logophoric pronouns are intrinsically shifted first person pronouns, the cross-linguistic rarity of the Amharic pattern – and the much more common recruitment of some other kind of third person pronoun to express logophoricity – is completely unexpected. Also unexpected is the fact that a language with third person logophoric pronouns like Yoruba has a "non-shiftable" first person pronoun: one would have to stipulate that the latter must be bound by the highest attitude operator with an Agent coordinate (corresponding to the utterance context), rather than by just any c-commanding attitudinal operator. The special conditions that must be placed on the relationship between a first person pronoun and the highest possible operator closely approach the constant function analysis, because the first person pronoun must be blind to any syntax intervening between itself and the highest operator – a natural consequence of the constant function analysis.

In the final part of the paper, Safir argues that the constant function strategy is independently motivated because it is also operative in two other cases. The first is English generic *one*, whose interpretation follows from the following restrictions:

(a) Generic restriction: The typical sentient individual representative of a class *K*,

(b) Indexical restriction: *K* includes the conversational participants in context *C*, the context of utterance.

The fact that the conversational participants are involved in the interpretation of *one* explains why the following examples are infelicitous:

- (9) a. # I believe one should be careful, but I don't believe I should be careful.
b. # I believe one should be careful, but I don't believe you should be careful.

By the indexical restriction, generic *one* picks out the current speaker and addressees, no matter who is speaking, across a discourse where the members of the conversation are constant. This effect is asyntactic, just as first person is: thus, independently of the nature of the generic restriction, the indexical restriction of generic *one* is yielded by a constant function.

Another instance of the constant function strategy is the proximate/obviative distinction in Algonquian languages. Safir argues that proximate marking is a form of non-shifting indexical morphology that picks out the central character under discussion within a given discourse span. The value of proximate can be changed by the speaker within a discourse to mark a “topic shift”, but crucially, it can also cross sentence boundaries, which shows that it is not a syntactic operator strategy.

In conclusion, Safir argues against the assimilation of the Propositional Attitude holder in logophoric contexts to the Agent of an utterance. Person (indexicality) is expressed by means of asyntactic constant functions, whereas “perspective” (logophoricity and *de se*) is expressed by means of syntactic operator binding.

In “Person and Binding (A Partial Survey)”, **Philippe Schlenker** compares two approaches to the semantics of person and then proposes a novel one. His starting point is two problems for the ‘kaplanian’ view of indexical pronouns (cf. also Schlenker 2003):

a) bindability problem: first and second person pronouns can be bound (cf. Heim 1991).

- (10) a. Only I did my homework ...therefore John didn’t do his.
 b. I did my homework, but Peter didn’t.

This goes against the assumption that their semantic value is determined directly by the context rather than via an assignment function (the kaplanian “Separation Thesis”).

b) Shiftability problem: in certain languages, like e.g. Amharic, indexicals can be evaluated with respect to the context of a reported speech act:

- (11) % on % @gna n@ -ññ yḥi-all
 John hero be.PF-1So 3M.say.AUX.3M
 ‘John says that he is a hero’, lit. ‘John says that I be a hero’.

This is a problem for the kaplanian “Fixity Thesis”, according to which the context determining the value of indexical pronouns must be that of the actual speech act.

Two approaches to these problems are then compared.

According to Theory I, pronouns are concealed definite descriptions whose restrictors may include predicates of the form *speaker(x,c)* or *addressee(x,c)* (where *x* is an individual variable and *c*

is a context variable). These predicates give rise to presuppositions concerning the discourse role played in the context by the individual that the pronoun refers to. Assuming a principle of “Maximize Presupposition”, third person pronouns can be assumed to be underspecified for these features: the underspecified forms are chosen whenever the value of the pronoun is not presupposed to play any discourse role. Singular personal pronouns can then be analysed as follows (plural pronouns require a slight elaboration):

- (12) $I_x \rightarrow [!y:y=x \ \& \ \text{author}(y,c)]$
 $\text{you}_x \rightarrow [!y:y=x \ \& \ \text{addressee}(y,c)]$
 $\text{he}_x \rightarrow [!y:y=x \ \& \ \text{male}(y)]$
 $\text{she}_x \rightarrow [!y:y=x \ \& \ \text{female}(y)]$

The fact that the definite descriptions contain an individual variable, x , accounts for their bindability; the presence of a context variable c in the restriction solves the shiftability problem: assuming that attitude predicates quantify over contexts, the context variable of the first person pronoun in the embedded clause of (11) is bound by an operator in Comp, and the attitude predicate applies to the resulting abstract. (A similar analysis also holds for logophoric pronouns in attitude contexts.)

- (13) John say- t_k - w_m that- c_i [$!x_m$: author(x_m , c_i)] be-a-hero- c_{iT} - c_{iw}

(In prose: for every context compatible with what John says, the author of that context is a hero at the time and world of that context.)

In order to distinguish ‘shiftable’ first person pronouns, like the Amharic one, from ‘non-shiftable’ first person pronouns as in English or French, Schlenker suggests that non-shiftable pronouns can take as argument only the designated context variable c^* , which by definition denotes the context of the actual speech act. Since the restriction *author* (x, c^*) is more highly specified than *author* (x, c), a non-shiftable first person pronoun (with the more specified restriction) will take precedence over a logophoric pronoun (with the less specified restriction): this accounts for the well known generalization that in languages like Ewe or Gokana a logophoric pronoun in attitude contexts is strongly dispreferred if it has a first person matrix antecedent; rather, the (non-shiftable) first person pronoun is used in the logophoric clause as well.

According to Theory II (cf. Heim 2002, von Stechow 2003), first person pronouns are variables that are always bound either by a sen-

tence-initial lambda operator carrying a first person feature, or by another pronoun bound to this lambda operator. A mechanism of feature percolation then transmits the first person feature to all the bound pronouns. (The lambda operator actually binds a triple <individual, time, world>, which essentially corresponds to a context):

- (14) a. I run
 b. $\lambda \langle x_i^{a*}, t, w \rangle [x_i^{a*} \text{ run-t-w}]$
 c. (b) is true in context c and with the assignment function s iff
 $\langle c_A, c_T, c_W \rangle \in [\lambda \langle x_i^{a*}, t, w \rangle [x_i^{a*} \text{ run-t-w}]]^{c,s} = 1$,
 iff $\langle c_A, c_T, c_W \rangle \in \{ \langle x, t, w \rangle : x \text{ runs at } t \text{ in } w \}$

This approach directly solves the bindability problem. In (10a), [*only I*] raises in LF and transmits its first person feature to the possessive pronoun (via a lambda-operator inheriting the same feature):

- (15) a. Only I do my homework (= Schlenker's 68)
 b. $\lambda \langle x_i^{a*}, t, w \rangle [[\text{only } x_i^{a*}]_{1st} [\lambda x_k^{a*} [x_k^{a*} \text{ do-t-w } x_k^{a*} \text{ 's homework}]]]$

As for the shiftability problem, it is possible to exploit a solution that has been independently proposed for the *de se* reading of control clauses, as in (16):

- (16) George hopes PRO to be elected.

According to Chierchia (1989) and others, controlled PRO can only have a *de se* interpretation involving conscious self-reference, so that for (16) to be true George has to be in a position to utter the first person statement: *I should get elected* (compare however Safir's paper in this volume). In the binding approach, the infinitival complementizer performs lambda-abstraction over a triple <individual, world, time>, and the matrix attitude predicate is a quantifier over triples. The embedded lambda-operator, rather than the main clause one, binds PRO:

- (17) $\lambda \langle x_i^{a*}, t, w \rangle \text{ George hope-t-w to-} \langle x_k, t', w' \rangle x_k \text{ be-elected-t'-w'}$

The truth conditions of (17) require that for each triple <x,t,w> compatible with what George hopes at the time and in the world of the utterance, x is elected at t in w; hence, George hopes to be in a context in which he can say truly: I am elected. (Note that the features of the matrix subject must be somehow transmitted to PRO.) A

parallel Logical Form can be developed for the Amharic shifted indexical in (11):

- (18) $\lambda \langle x_i^{a^*}, t, w \rangle$ John say-t-w that- $\langle x_n^a, t_o, w_p \rangle$ x_n^a be-a-hero- t_o - w_p
 (Schlenker's 73)

In the second part of the paper, Schlenker develops a novel Theory III that is meant to combine the strenght point of its two predecessors. As in Theory II (and unlike Theory I), first and second person pronouns are simply variables, which may be bound or left free. However, as in Theory I (and unlike Theory II), first and second person features are always semantically interpreted. This is made possible by introducing the discourse roles *speaker* and *hearer* directly into the sequences of evaluation, rather than in the Logical Forms. The ontology is considerably enriched but, Schlenker argues, this enrichment buys out a derivation of some basic facts of Binding Theory (cf. also Schlenker 2004).

The new notion of sequence of evaluation is intrinsically dynamic: it is a memory register which initially contains only those elements that are given by the speech act, the speaker (with role a^*) and the addressee (with role h^*). As the sentence is analysed, top-down, additional elements are added to the sequence of evaluation, which thus represents at any given point the linguistic context with respect to which a constituent is evaluated. The interpretation proceeds in the following way:

(i) The denotation of proper names and definite descriptions is added at the end of the sequence of evaluation (at the point when they occur).

(ii) An n-place predicate is true under a sequence just in case it is satisfied by the n-tuple of the last n elements in the sequence.

Consider for instance the interpretation of the following example:

- (19) a. Ann hates Bill (said by John to Mary).
 b. $[[\text{Ann hates Bill}]]^{t,w} j^{a^*} \wedge m^{h^*} = 1$ iff $[[\text{hate Bill}]]^{t,w} j^{a^*} \wedge m^{h^*} \wedge a = 1$, iff $[[\text{hate}]]^{t,w} j^{a^*} \wedge m^{h^*} \wedge a \wedge b = 1$, iff a hates b at t in w.

The initial memory register contains the sequence $j^{a^*} \wedge m^{h^*}$. After the subject is computed, a is added to the sequence, yielding $j^{a^*} \wedge m^{h^*} \wedge a$. After the object is computed, b is also added yielding $j^{a^*} \wedge m^{h^*} \wedge a \wedge b$. The sentence is true iff the ordered pair $\langle a, b \rangle$ satisfy the predicate $[[\text{hate}]]$.

(iii) Anaphoric pronouns can only retrieve elements from the sequence of evaluation, and move them to the end of the sequence (the original position of the elements filled by #). A negative index (e.g. -1, -2) indicates how far back in the sequence the intended element is to be found. First and second person pronouns too are anaphoric, i.e. they carry negative indices and can only recover elements of the sequence that have the roles a^* and h^* respectively; symmetrically, third person pronouns cannot recover elements with these roles. This requirement applies both to free and to bound uses of pronouns.

- (20) a. I run (said by John to Mary)
 $[[[I_{-2} \text{run}]]]^{t,w} j^{a^*} m^{h^*} = [[[\text{run}]]]^{t,w} \# m^{h^*} j^{a^*} = 1$ iff j runs at t in w

The bindability problem is directly accounted for, since pronouns are variables (as in Theory II); it is however necessary to assume a mechanism of ‘vehicle change’ in ellipsis, in order to insure that in (10b) the first person feature of the possessive pronoun is not copied in the elliptical VP.

As for shifted indexicals (11), Schlenker proposes that an embedded clause under an attitude predicate like e.g. *say* is evaluated under a modified sequence which, for every $\langle x, t, w \rangle$ compatible with the agent’s assertion, contains the objects x^a, t, w , where x comes with the role ‘author’ (distinct from a^* , the author of the actual speech act). The analysis is parallel to that of Theory II 8cf. (18) above), but the features a^* and a (cf. (18)) are now incorporated in the sequence of evaluation.

The memory register proposed by Schlenker can also derive Conditions B and C of Binding Theory. Firstly, Schlenker justifies a constraint of Non-Redundancy based on the oddness of examples like (21), where the speaker refers to himself by his own proper name:

- (21) a. # John smokes (said by John to Mary)
 b. $[[[\text{John smoke}]]]^{t,w} j^{a^*} m^{h^*} = [[[\text{smoke}]]]^{t,w} j^{a^*} m^{h^*} j$

In the resulting sequence of evaluation, the element j occurs twice (first as the author of the context, then reintroduced as the referent of the subject R-expression). Schlenker proposes that an element cannot occur twice in a sequence of evaluation (Non Redundancy).

Consider now a typical Condition C violation like (22):

- (22) a. #Bill likes Bill (said by John to Mary)
 b. $[[\text{Bill likes Bill}]]^{t,w} j^{a^*m^h^*} = [[\text{like Bill}]]^{t,w} j^{a^*m^h^*b} = [[\text{like}]]^{j^{a^*m^h^*b}}$

The sequence resulting from the interpretation of (22) must contain two occurrences of *b*, and thus violates the constraint of Non-Redundancy, whereby an element cannot occur twice in a sequence of evaluation. No similar violation arises in case of co-reference without *c*-command, like (23), because only the direct arguments of a clause are introduced in the sequence of evaluation for that clause:

- (23) Bill’s teacher likes Bill (said by John to Mary)

It is also possible to derive a simple version of Condition B:

- (24) a. # Bill like him₁.
 b. $[[\text{Bill like him}_1]]^{t,w} s = [[\text{likes him}_1]]^{t,w} s^{\#}b = [[\text{likes}]]^{t,w} s^{\#}b$

For *Bill* and *him* to co-refer, the verb *like* must be evaluated with respect to a sequence *s* whose last element has been moved from the penultimate position and replaced by # there; but # and the last element do not provide a wellformed pair of elements that can satisfy the binary predicate *like*. The system is then developed to cope with quantification, economy of variable binding à la Fox (1999), and plural pronouns.

In sum, Theory III retains the basic insight of the binding approach II, namely, that pronouns – also indexical ones – are essentially variables; however, it needs not stipulate that person features are uninterpreted on the grammatical categories on which they occur. Person features are interpreted as constraining the possible value of a pronoun, such that it must (or cannot) bear a specific discourse role. Discourse roles are directly imported into the sequence of evaluation, which is conceived of, dynamically, as a memory register of the referents introduced in the linguistic context. This powerful mechanism also allows for a derivation of Conditions B and C of the Binding Theory.

In “The syntax of Person, Tense, and Speech Features”, **Halldór Sigurðsson** proposes a unified analysis of deictic features that are interpreted relative to the speech event.

Within the framework of “minimal feature syntax”, individual features are independent syntactic elements combined by Merge, giv-

ing rise to a rich array of functional categories for which any single language shows only partial morphological evidence. Tense, Mood and the ϕ -features all relate to features of the speech event, that is, the time and location of speech and the speech participants. Sigurdsson proposes the following general Computation Principle:

- (25) Grammar computes or interprets (propositional) event features in relation to speech (event) features.

The relation is not direct, but it is mediated by grammatical features. Any syntactic event feature is computed in relation to a grammatical feature, and the grammatical feature is in turn computed in relation to a speech feature:

- (26) $E_F \leftrightarrow G_F \leftrightarrow S_F$

One well studied instantiation of this computation is the Reichenbachian theory of tense (cf. e.g. Hornstein 1990, Giorgi and Pianesi 1997), in which the Event Time is related to the Reference Time of the grammatical tense, and the Reference Time is in turn related to the Speech Time. Person (and other ϕ -) features have a parallel status: they are grammatical participant features, G_p , which relate event participants, E_p , and speech participants, S_p .

The speech participants are syntactically realized by the logophoric features of Agent and Patient (Λ_A, Λ_P), which are the parallel of the speech time in the person system. Person features establish a grammatical link between an argument's θ features and these Λ -features: θ features $\leftrightarrow \phi$ -features $\leftrightarrow \Lambda$ -features. On this view, an argument or a θ -feature does not come with any fixed ϕ -values, but rather, with active unvalued ϕ -‘variables’ that are valued under checking by clausal ϕ - and Λ -elements.

A feature may either be positively matched (as being identical with a particular value) or negatively matched (as being ‘actively distinct’ from that value): for instance, a ϕ -variable that is positively matched against Λ_A will get the value [+1Person], whereas a ϕ -variable that is negatively matched against Λ_A will get the value [-1Person]. It follows that syntax operates with interpretable features only: features that are active or uninterpreted at some derivational stage get valued or interpreted under matching.

An argument is thus a set of interrelated event features, grammatical features and speech features, which are matched by one and the same phonological unit (a ‘lexical item’) after the computation of the CP phase containing the features has been completed (late insertion).

Any utterance is a CP, containing elements of the speech event in its left sphere. The clausal structure has three basic layers corresponding to the computation schema in (26):

- (27) [_{CP}... speech features [_{IP} grammatical features [_{vP} event features ...]]]

These correspond to the lexical, inflectional and complementizer layers of Rizzi (1997).

Besides the Λ -features, the speech layer also contains the time and location of speech (S_T , S_L). Sigurðsson assumes that S_L corresponds to Rizzi's (1997) Finiteness and to the EPP feature. This is matched by +/- SPEECH LOCAL elements, that is, either +SL (definite) subjects or -SL expletives (which typically derive from items that denote a speech distal location, like e.g. English *there*, Danish *der*, or a speech distal argument, e.g. French *il*, Icelandic *aD*). Assuming that that positive matching (+SL) takes precedence over negative matching (-SL), expletives will match the topmost S_L only in the absence of a definite subject.

This leads to the following extended clausal structure, incorporating Rizzi's (1997) left periphery:

- (28) [_{CP} Force ... Λ_A , Λ_P ... Top ... S_T ... S_L [_{IP} ... Pers_s ... Num_s ... M ... T ... [_{vP} ...]]]

A first person singular subject matches not only Num_s and Pers_s but also S_L (being inherently speech local), Top (being inherently topical), and Λ_A and Λ_P . In *there*-expletive constructions, instead, the associate of *there* evidently matches Num_s positively, whereas *there* itself can be analyzed as negatively matching Pers_s and S_L , and potentially also Top (in the absence of a positive Top matcher):

- (29) There have probably been some strangers in the apartment.

A different split of matching is found in Icelandic expletive constructions. The Icelandic expletive *aD* 'there, it' is subject to the Clause Initial Constraint: it is strictly confined to the absolute first 'position' in both main and subordinate clauses.

- (30) a. **aD** hefur veriD talaD um etta.
 it has been talked about this
 'This has been talked about/discussed.'
 b. Hefur (* **aD**) veriD talaD um etta?
 has (it) been talked about this

This relates to the fact that *aD* never triggers agreement (as opposed to e.g. the Mainland Scandinavian *det*). The Clause Initial Constraint follows from the hypothesis that Icelandic *aD* does not match Num_S and Pers_S , but it is directly merged in (or raised to) the edge of IP in order to match $S_L = \text{Fin} = \text{EPP}$.

After this general sketch, Sigurðsson analyses in more detail the computation of Person. Theta-Person matching proceeds as follows:

- (31) a. An event participant (argument) is valued under Theta-Person matching as being either [+Person] or [-Person].
 b. Only [+Person] arguments are potential speech participants, that is, they are the only arguments that undergo Λ -matching.

[+Person] arguments can then match positively or negatively the Λ -features, giving rise the following possible matching relations:

- (32) a. $\theta = +\text{Person} = +\Lambda_A, -\Lambda_P$: 1P by computation
 b. $\theta = +\text{Person} = -\Lambda_A, +\Lambda_P$: 2P by computation
 c. $\theta = +\text{Person} = -\Lambda_A, -\Lambda_P$: 3P by computation
 d. $\theta = -\text{Person} (= 0\Lambda_A, 0\Lambda_P)$: 3P by default

Note that third person event participants do not lack person (contra Benveniste 1966), but they negatively match the speech event participant Λ -features. However, 3rd person morphology does not generally distinguish between ‘personal’ and ‘non-personal’ 3rd person (as in (29)). The same mechanism is also operative for other arguments, by means of Pers_0 grammatical feature(s).

The interaction of person with number raises interesting issues (compare also Di Domenico’s and Schlenker’s papers). Sigurðsson argues that *we* is not simply augmentative: it is the plural of *I* in the sense that it denotes more than one potential linguistically active selves. In fact, *we* can mean ‘I, John, Mary and you’, but it cannot mean ‘I and this book’ (the same holds for 2nd and 3rd person pronouns). In combination with [+Plural], the constellations $+\Lambda_A$ & $-\Lambda_P$ and $+\Lambda_A$ & $+\Lambda_P$ yield exclusive vs. inclusive 1st person plural, respectively.

Next, Sigurðsson considers pronoun “agreement” in indirect vs. direct reported speech. Contrary to Safir (this volume; see above), Sigurðsson argues that this is a syntactic phenomenon, mediated by the speech features. In languages like Punjabi, Persian, Kurdish, and Hindi-Urdu, regular subordinate clauses show the same shift of pronoun reference as does direct speech in languages like English (cf. also Schlenker 2003, this volume):

- (33) Ali ba Sara goti ke **men tovem** xosh garaka. (Kurdish)
 Ali to Sara said that I you pleasant need-is
 ‘Ali told Sara that he likes her.’ (also: ‘... that I like you.’)

Crucially, for Sigurðsson the notion of speech event is not limited to actual speech or utterance situations, but also to the linguistic act of thinking (and hence attitude predicates like ‘say’, ‘think’, ‘believe’, ‘wish’, etc.). He proposes that subordinate clauses have a secondary/anaphoric speech event, with speech features that inherit their values either (a) from the silent elements of the overall matrix speech event, or (b) from overt elements in a preceding clause.

The first option is found in subordinate propositional attitude clauses of the English type:

- (34) He said to me that he loved me.
 $[_{CP} \dots \{\Lambda_A\}_i \dots \{\Lambda_P\}_k \dots [_{IP} \dots he_j \dots me_1 \dots [_{CP} \dots \{\Lambda_A\}_i \dots \{\Lambda_P\}_k \dots [_{IP} \dots he_j \dots me_1 \dots$

The second option is instead attested in reported direct speech in English (and also in “pronoun-shifting” subordinate clauses like (33)):

- (35) He said to me: I love you.
 $[_{CP} \dots \{\Lambda_A\}_i \dots \{\Lambda_P\}_k \dots [_{IP} \dots he_j \dots me_1 \dots [_{CP} \dots \{\Lambda_A\}_j \dots \{\Lambda_P\}_1 \dots [_{IP} \dots I_j \dots you_1 \dots$

In the tense domain, a similar “speech event binding” of the temporal coordinate S_T is found in Icelandic subjunctive clauses (cf. Sigurðsson 1990).

The final part of the paper is devoted to the well studied phenomenon of Icelandic long-distance reflexivization, which is commonly analysed as an instance of logophoric binding (see also Safir, this volume):

- (36) *Jón* heimtar að *María* raki sig.
 John demands that Mary shaves SELF
 ‘John demands that Mary shaves him.’

Sigurðsson proposes that the speech event contains a point of view feature, POW, that is usually bound by the overall logophoric agent, but may be bound by a superordinate subject in propositional attitude contexts. Thus, the anaphor in (36) is *locally* bound by an (invisible) POW feature in the secondary speech event, that feature in turn being bound by the matrix subject:

(37) [_{CP} ... { Λ_A }_i ... [_{IP} Jón_k ... [_{CP} ... { Λ_A }_i ... POW_k ... [_{IP} María₁ ... SELF_k]]]]

In conclusion, in this paper Sigurdsson provides an initial sketch a formal theory of logophoric matching and speech event binding, and shows that such a theory can cover a variety of empirical domains, including mood, tense, personal pronouns and expletive constructions.

In “Evidential Paradigms, World Variables and Person Agreement Features”, **Margaret Speas** argues that evidential morphemes are person agreement morphemes, specifying the same restricted set of syntax-discourse relations as standard nominal agreement, but agreeing with a “world argument” rather than a nominal argument.

Willett (1988) found that languages never grammaticize more than four basic evidential categories, arranged along the following hierarchy:

(38) Personal experience >> direct (eg. sensory) evidence>> indirect evidence >> hearsay.

The restriction to just four categories and their fixed hierarchization suggest that evidential paradigms are subject to syntactic constraints. Speas argues that evidentials introduce a modal base (in the sense of Kratzer 1981, 1991) w.r.t. which the proposition is interpreted, and crucially, they specify how the modal base is related to the speaker and the discourse.

Speas adopts the feature geometry proposed by Harley & Ritter (2002) for pronominal features:

(39)

```

      Referring expression (=Pronoun)
      /      |      \
    Participant  individuation
    /      \
  Speaker  Addressee
  
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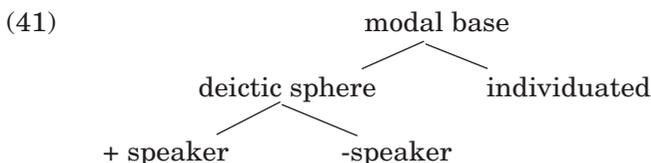
A first person singular pronoun bears a [participant] feature not further specified (since the speaker is the most prominent discourse participant); a second person singular pronoun has both the [participant] and [addressee] nodes. Exclusive plural first person pronouns bear a [speaker] feature dependent on the [participant] node; inclusive plural first person has a [participant] feature with both the

[speaker] and [addressee] dependents. Finally, a third person pronoun, which refers to a non-participant, is only specified for the [individuation] node and its dependents, which encode non-indexical features (gender, number, animacy, etc.).

From this perspective, person agreement expresses a relation between the discourse and an argument. In a parallel fashion, Speas proposes that evidential morphemes spell out a relation between the discourse and the world(s) in which the sentence is to be interpreted. The evidential modal bases that underlie the four categories are characterized in the following way:

- (40) Evidential modal bases
- a. personal experience: knowledge that is known (as such) only by **the speaker**
 - b. direct: the modal base includes anything that is in the same deictic sphere as the speaker but is **not the speaker's internal experience**.
 - c. indirect: **facts** about the world **plus speaker's internal experience** of making an inference
 - d. hearsay: knowledge **outside of the present deictic sphere** (i.e. acquired in some context other than the current discourse context; e.g. general information, narrative tradition...)

These categories derive from a feature geometry parallel to (39):



This structure distinguishes knowledge available in the deictic sphere from knowledge acquired elsewhere, and further distinguishes knowledge available only to the speaker from knowledge acquired through some means other than internal experience.

The personal experience evidential morpheme has a [deictic sphere] node with a specified [+speaker] node; the direct evidence morpheme, instead, has the [deictic sphere] node with a [-speaker] dependent. In the indirect evidence category, both the [+speaker] and

the [-speaker] dependents are specified. Finally, the hearsay evidential morpheme has only the [individuated] node, which is interpreted as evidence obtained outside the present deictic sphere.

The proposed feature geometry makes a number of predictions concerning possible evidential systems. Since both [+speaker] and [-speaker] are dependent on the [deictic sphere] node, the following correlations are expected:

- (i) If a language has a specific morpheme for personal experience, it will also have a morpheme for indirect evidence.
- (ii) If a language has a specific morpheme for direct evidence, it will also have a morpheme for indirect evidence.

Assuming that that no language can have the [-Speaker] node without also having the more prominent [+Speaker] node, it is possible to obtain the further prediction that no language with a category specified for [-speaker] (i.e. direct evidence) will lack the evidential categories specified for [+speaker] (i.e., personal experience). Thus, besides constraining the possible categories, the feature geometry (41) also derives many of the effects of Willett's implicational hierarchy. It also allows for two types of system that are not consistent with that hierarchy but are in fact attested: a binary system opposing just personal experience ([+speaker]) and indirect evidence (([+speaker], [-speaker])), and a three-way system marking personal experience, indirect evidence, and hearsay, which is actually found in Quechua.

In sum, evidential paradigms do not encode just any pragmatically salient source of information: they encode a restricted set of features that are parallel to pronominal person features and express the relationship between the modal base and the discourse context.

In the second part of the paper, Speas provides evidence in support of the hypothesis that there exists a world argument in the syntax. The evidence comes from the fact that the world within which a sentence is to be interpreted shows the same locality conditions and restrictions on interpretation that pronouns and tenses do (cf. Kratzer 1998, Partee 1973).

Like tenses and pronouns, *W*'s can have bound variable, pronominal, controlled, *de se*, *de re* and indexical interpretations. The following sentence exemplifies a bound variable modal base in the embedded clause:

- (42) Every boy thinks he must be stupid.

In (42), the set of propositions on which the conclusion "x must be stupid" is based is different for every boy x. The binder for the rele-

vant world/modal base variable is the epistemic world of the subject's mental state, which is introduced by the attitude predicate. Crucially, the bound *W* reading does not arise if the predicate that introduces the epistemic state doesn't c-command the modal, as in (43): this shows that syntactic binding is involved.

- (43) a. If every boy thinks he failed the exam, he must be stupid.
b. [If every boy $[(w_i)]$ thinks he failed the exam]] [he $[(w_i^*)]$ must be stupid.]

Like pronouns and tenses, the world introduced by a modal can have a linguistic antecedent (the clause-initial adjunct in (44a)) or be free as in (44b) (i.e. based on knowledge that the speaker has, or on facts that are salient in the conversation):

- (44) a. Judging from your expression, you must be upset.
b. Iraq must have nuclear weapons.

Coreference between two world arguments is also subject to a locality constraint similar to Principle B. In (45), I may have tried to talk to Mary and found that we have little in common, and that she seemed hurt and angry. Based on this information, I infer that we are not friends any more and it is apparent that Mary believes this: the modal base of *apparently* and of the embedded modal is the same. In (46), instead, the modal base for *apparently* and that for the epistemic modal *must* cannot be the same: the two world arguments must be locally disjoint.

- (45) Apparently, Mary believes that we must not be friends any more.
- (46) Apparently, John must be upset.
=It is apparent based on some set of evidence that there is *another* set of evidence indicating that John's upset.
NOT: Based on some set of evidence, John is upset and that's apparent.

Speas also argues that the world argument gives rise to *de se/de re* ambiguities. A sentence like (47) has two possible interpretations. On the *de re* *W* reading, (47) is true but the modal base for *must* is not Tommy's epistemic state: Tommy's mother may have told him that Ms. Jones is at the door, and he believes her, although he has no idea who Ms. Jones is, and has not made a modal judgment of his own. In this case, the embedded modal base is free. In the *de se* *W*

reading, instead, the embedded modal base is controlled by the Subject's epistemic state:

(47) Tommy believes that Ms. Jones must be at the door

Finally, as an example of indexical world argument, Speas suggests the Ngiyambaa morpheme *baga*, which conveys a counter-assertion, and English *but*, which negates some implicatures triggered in the context of utterance.

In conclusion, evidential morphemes spell out a kind of person agreement with a world argument. The possible evidential categories and systems are strikingly parallel to the possible pronominal categories and systems. Evidence from the binding behaviour and locality constraints support the view that the world argument is syntactically realized.

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