

The Typology of Structural Deficiency

On the Three Grammatical Classes*

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1. ON THE STUDY OF PRONOUNS

1.1. The notion of "classes of pronouns"

It is a general property of language that words fall into classes. Among the many relevant oppositions (verbs / adjectives, transitives / ergatives, etc.), one distinguishes itself from all others: that instantiated by the opposition between different classes of pronouns.

This opposition is unique in regularly contrasting *synonymous pairs*; in cutting across all components of grammar; in having no systematic correlation with any interpretive characteristic (semantic or phonetic); in determining a large set of (apparently) absolute universals; and in cutting across lexical classes, §1.1.1-5.

The fundamental goal of the present inquiry is to uncover the primitive underlying these exceptional classes.

1.1.1. Unmarkedly, one and the same pronoun (semantically / functionally defined) falls into distinct classes. The Italian third person plural feminine nominative pronouns, for instance, divide into two distinct classes with respect to coordination and reference:

			<+human>	<-human>
(1)	a. Esse	(*e quelle accanto) sono troppo alte.	✓	✓
	b. Loro	(e quelle accanto) sono troppo alte.	✓	*
		3.pl.fem.nom. (and those besides) are too tall / high		

One class of pronouns ("class 1") may be coordinated, but it is limited to human referents, while the other ("class 2") cannot be coordinated and may refer to both human and non-human entities. In many cases, the two classes are not only functionally but also phonetically non-distinct: The French translation of (2), for instance, reproduces exactly the same pattern without morphological variation:

(3)	a. Elles	sont trop grandes.	✓	✓
	b. Elles	et celles d'à côté sont trop grandes.	✓	*

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Finally, none of this would have been possible without previous studies, such as those of: R. Kayne, for the syntactic placement of clitic personal pronouns, CL-PL (1975, 1991), A. Holmberg, for first bringing to light clitic-like non-clitics, (1986, 1991), and E. Berendsen / J. Schroten for the new emphasis on the old observation concerning the interaction between deficiency and ability to refer to non-human entities, (1986 / 1992).

Although the whole paper is a joint enterprise, for all academic purposes Anna Cardinaletti takes responsibility for Sections 1.-5.1., Michal Starke takes responsibility for Sections 5.2.-10.

(5)		occurs in coordination	only human referents
class 1	<i>loro, elles</i> ₁	+	+
class 2	<i>esse, elles</i> ₂	–	–

1.1.4. This unique abstract and pervasive distinction also seems to be an absolute universal. It is for example always true that a coordinated personal pronoun cannot refer to a non-human entity. As an example of the cross-linguistic invariance of class 1 and class 2, the following languages all have an asymmetry identical to that in (2)-(4):¹

Let us note however, that, somewhat paradoxically, English provides the only example, to our knowledge, going against the putative absolute universal that coordinated personal pronouns cannot refer to non-human entities: For a majority of speakers, with some variation both across speakers and constructions, coordinated *they*, *them* may still refer to non-human entities. This fact may however be irrelevant: The above generalisation holds only of personal pronouns. Demonstratives, for instance, may refer to non-human entities when coordinated. But the

		<+human>	<- human>
(7)	German (∈ Germanic)		
a.	Sie sind groß.	✓	✓
b.	Sie und die daneben sind groß. they and those besides are tall / big	✓	*
(9)	Slovak (∈ Slavic)		
a.	Vidieť som ich .	✓	✓
b.	Vidieť som ich a tých druhých . seen I.am them and these others	✓	*
(11)	Hungarian (∈ Finno-Ugric)		
a.	Láttam öket .	✓	✓
b.	Láttam öket és a mellettük levöket . I.saw them and those besides	✓	*
(13)	Hebrew (∈ Semitic)		
a.	Hi gvoha.	✓	✓
b.	Hi ve-zot le-yad-a gvohot. she and-that.one to-side-her tall / big	✓	*
(15)	Gun (∈ Kwa)		
a.	Yélè yon wankpè.	✓	✓
b.	Yélè kpo yélè kpo yon wankpè. she and she and know(s) beauty	✓	*

1.1.5. Finally, not only personal pronouns, but also quantifiers, adverbs, adjectives, etc. divide into class 1 / class 2, here Greek adverbs and French bare quantifiers (§9): ²

- (17) a. To **sigò** (*ke **kalo**) évrasa.
it slowly and well I.boiled
- b. Jean a **tout** (*et encore plus) vu.
Jean has all and even more seen

1.1.6. The conjunction of such exceptional properties (regular synonymy, (homophony,) link between all components of grammar, no link to any interpretive characteristics, absolute universal) makes this distinction one of the most profound and mysterious properties of human grammar.

The goal of this study is to uncover the source of these asymmetries, that which makes a pronoun be a class 1 / class 2 pronoun:

- What is γ , the underlying (universal) trigger of (2) which provokes a wide array of distributional, semantic, prosodic and morphological asymmetries between two forms of one and the same pronoun?

apparent English exceptions involve exactly those pronouns which have an initial demonstrative morpheme, *th-*. English plural pronouns might thus be similar to Scandinavian third person personal pronouns, which have demonstrative morphology, and no counterexample arises. Given the wealth of indications provided by morphology (§4-7), this path seems very plausible.

² There is no intrinsic impossibility in (18b): The class 1 version of the quantifier is perfectly acceptable in the same sentence: *Jean a vu tout et encore plus* 'John has seen all and even more'. The same holds of the Greek adverbs, where the grammatical counterpart is *To évrasa sigá ke kalà* 'it I.boiled slowly and well'.

1.2. Methodology: On generalising and idealising

1.2.1. In doing systematic research directed towards the formulation of an abstract model, facts (or asymmetries) are not interesting in and by themselves. What is to be explained by the model are (genuine) generalisations. In such research, it is usual that some facts resist generalisation, and some generalisation resist integration into the model. In these cases, idealisation is necessary: Resisting facts are consciously evacuated, in hope of subsequent reintegration.

Although these two guidelines are contradictory (generalisation dictates integration, idealisation provokes elimination), no contradiction results: Idealisation is valid only as a 'last resort', when generalisation cannot be reasonably pursued further.³

1.2.2. In studies of pronouns this basic point is rarely respected: Many a model seeks to derive a generalisation which eliminates an unnecessarily vast amount of facts. For this reason, a large part of what follows is devoted to a preliminary step: establishing what there is to be explained, i.e. what the surface reflexes of γ are (§2-3).

1.2.3. Extending a generalisation can mean one of three things. Generalisations being of the form "all elements of the set λ fall into n non-overlapping sets $\mu_1 \dots \mu_n$ with respect to the set of properties π ", either the *basis* of the generalisation, λ , the *classes*, μ , or the *contrasts* of the generalisation, π , can be extended.

The simple generalisation (6) can be extended in all three directions:

- (a) w.r.t. π : the contrasting properties are not limited to coordination and human referents (§2)
- (b) w.r.t. μ : the π s divide the λ s into three, not two, classes (§3)
- (c) w.r.t. λ : the elements submitted to the generalisation are not limited to personal pronouns (§9).

³ This is a somewhat simplified version of facts. In practice, the 'last resort' nature of idealisation is blurred by an additional factor: tolerance to uncertainty. Since it is rarely clear whether a generalisation is valid or spurious, a limit to reasonable doubt/uncertainty has to be fixed. This limit is ideally relatively low, so as not to work with potentially spurious generalisations. On the surface, this may give the impression that idealisation takes precedence over generalisation. A more correct statement is that idealisation is a last resort when a generalisation cannot be extended, where 'cannot' is understood as incorporating the accepted limit to uncertainty.

PART I. WHAT IS THERE TO BE ACCOUNTED FOR?

2. ON BEING DEFICIENT

2.1. Morphology

When (4) is transposed to a masculine subject, two morphologically distinct, though related, pronouns appear. The same obtains with objects, here illustrated for Italian and Slovak:

			<+human>	<-
human>				
(19) a.	Il est beau.	✓	✓	
b.	* Il et celui de Jean	sont beaux.	*	*
c.	Lui est beau.	✓	*	
d.	Lui et celui de Jean he and the one of John	sont beaux. is / are pretty	✓	*
(21) a.	Non metterò mai loro	il cappuccio.	✓	✓
b.	* Non metterò mai loro e loro	il cappuccio.	*	*
c.	Non metterò mai	il cappuccio a loro .	✓	*
d.	Non metterò mai not I.will.put never	il cappuccio a loro e a quelle altre. the cap / pen-top to them and to those others	✓	*
(23) a.	Vidím ho . ✓		✓	
b.	* Vidím ho a tých druhých.		*	*
c.	Vidím jeho . ✓		*	
d.	Vidím jeho a tých druhých. I.see it / him and these others		✓	*

Minimally, the fact that the morphological differences exactly correlate with coordination possibilities and with possibilities w.r.t. human reference, confirms the correctness of the class 1 / class 2 distinction. But morphology not only confirms the existence of an abstract γ , it also reveals another property associated with it: The morphological difference is asymmetric. If transparently distinct, class 2 personal pronouns are systematically reduced with respect to class 1 personal pronouns: ⁴

- (25) *Morphological asymmetry:*
Morphology (class 2) \leq morphology (class 1).

Terminology: The abstractness of the two classes is no impediment to more intuitive terminology. Drawing on the clear orientation of the morphological asymmetry, class 2 elements will be called "deficient", and class 1 elements "strong".

2.2. Distribution

When the initial paradigm, (4), is embedded under *trouver* 'find', strong and deficient personal pronouns surface in different positions: ⁵

⁴ The proviso to *transparent* distinctness is necessary due to the existence of the third case of the three possible morphological relations: (a) the two lexemes are identical, <elles ; elles>, (b) the two lexemes are different, and one is a proper subset of the other, a case of transparent morphology, <jeho ; ho>, <a loro ; loro>; and (c) the two lexemes are different, and no (proper) subset relations obtains, a case of opaque morphology, <lui ; il>.

If opaque class 1 / class 2 relationships are due to the class 1 element being a porte-manteau morpheme for the distinct morphemes of a transparent class 1 pronoun, then the text generalisation is correct underlyingly but will be statistical at the surface: Some surface counterexamples should exist due to the surface unpredictability of portemanteau morphemes.

⁵ The c-example is not acceptable as it is. It becomes natural if *elles* is understood as contrastive, cf. §2.3.

				<+human>	<-
human>					
(27) a.	Jean les	trouve	belles.	✓	✓
b.	* Jean les et celles d'à côté	trouve	belles.	*	*
c.	Jean	trouve elles	belles.	✓	*
d.	Jean	trouve elles et celles d'à côté	belles.	✓	*
	John them.fem and those besides	finds them.fem and those besides	pretty		

Again, this asymmetry strictly correlates with those discussed above (coordination, human referents, morphology) and such a perfect correspondance of four properties legitimates the postulation of two abstract classes.

But again, not only is there a *difference* between the two classes, but there is an *asymmetric* difference: One class has an impoverished distribution w.r.t. the other. While strong pronouns have the distributional liberty of a corresponding noun-phrase (a full noun phrase must occur in post-verbal position in (28)), there are three types of positions a deficient pronoun cannot occupy (cf. Kayne (1975) for an early systematization of the distributional properties of pairs such as *les* / *elles* in French).

2.2.1. θ -Positions

Differently from strong personal pronouns and noun-phrases, deficient pronouns cannot occur in what might be taken to be the base, or θ -position. The following examples illustrate the base position of subjects, indirect objects and direct objects, respectively, in Italian: ^{6 7}

(29) a.	{Essa _D ; Lei _S ; Maria}	forse l'ha fatto	{*essa _D ; lei _S ; Maria}	da sola.
		{it _D ; she _S ; Mary}	maybe it-has done	DA
alone				
b.	Non dirò mai	{loro _D ; *a loro _S ; *a Gianni}	tutto	{*loro _D ; a loro _S ; a Gianni}.
	not I.will.say never	{to.them _D ; to them _S ; to John}	everything	
c.	Gianni	{li _D ; *loro _S ; *questi studenti}	stima	{*li _D ; loro _S ; questi studenti}.
	John	{them _D ; them _S ; these students}	estimates	

2.2.2. Peripheral positions

Differently from strong personal pronouns and noun phrases, deficient pronouns cannot occur in a series of peripheral positions (counting isolation as peripheral, maybe as a subcase of dislocation). Literally, the same constraint holds of any other deficient pronoun, be it Dutch *het* 'it', Slovak *mi* 'to me', or English *it*: ⁸

(31) a.	E' { *essa _D ; lei _S ; Maria }	che è bella.	(cleft)
	it is { *3.sg.fm _D ; 3.sg.fm _S ; Mary }	that is pretty	
b.	{ *Essa _D ; Lei _S ; Maria },	lei è bella.	(left dislocation)
	{ *3.sg.fm _D ; 3.sg.fm _S ; Mary },	she / it is pretty	
c.	<i>pro</i> arriverà presto,	{ *essa _D ; lei _S ; Maria }.	(right dislocation)
		she / it will arrive soon, { *3.sg.fm _D ; 3.sg.fm _S ; Mary }	
d.		Chi è bella?	(isolation)
		who is pretty? { *Essa _D ; Lei _S ; Maria }	
			{ *3.sg.fm _D ; 3.sg.fm _S ; Mary }

⁶ D- and S-indices correspond to 'deficient' and 'strong'. The restrictions on the placement on *essa* (or equivalently *egli* 'he', *essi* 'they') and dative *loro* 'to.them' are particularly interesting due to absence of any adjacency effect with the verb, contrary to other Italian deficient pronouns.

Here and throughout, curly brackets show exclusive alternatives: Several elements inside a curly bracket are several distinct options to fill one position, while several occurrences of curly brackets inside one and the same example are alternative positions for one element.

⁷ There are so many interesting interactions between "being deficient" and "being complement of a preposition", that we reserve this topic for a different article. No mention of the interaction between pronouns and prepositional phrases will be made here (modulo "dummy" prepositions, §5).

⁸ As expected, in all these constructions, the French *elle* 'she' may only refer to human entities.

2.2.3. C-Modification / Coordination

Noun-phrase internal modifiers cannot modify strong personal pronouns, (34a). Adverbs that modify the whole noun phrase (c-modifiers) may however do so, (34b,c). But even c-modifiers cannot modify deficient pronouns, (34b',c'):

- | | | | | | | | |
|---------|---|-----------------------------|-----|-----|---|-----------------------------|----|
| (33) a. | * | {beau; rapide; ... } | lui | a'. | * | {beau; rapide; ... } | il |
| b. | ✓ | {vraiment; seulement; ... } | lui | b'. | * | {vraiment; seulement; ... } | il |
| c. | ✓ | lui {seul; aussi; ...} | | c'. | * | il {seul; aussi; ...} | |

The ban on c-modification and coordination holds even if the complex occupies an otherwise licit position:

- | | | | | |
|---------|-----------------------|--|-----------------|------------------|
| (35) a. | Anche / Solo | {*essa _D ; lei _S ; Maria } | è bella. | (c-modification) |
| b. | Lei e(d) | {*essa _D ; lei _S ; Maria } | sono belle. | (coordination) |
| | also / only / she and | {*3.sg.fm _D ; 3.sg.fm _S ; Mary } | is / are pretty | |

2.2.4. Overview

(37) Syntactic Asymmetry:

A deficient, but not a strong, personal pronoun cannot occur at surface structure in:

- θ-/ base positions
- peripheral positions
- c-modification, coordination

As a generalisation on distributional asymmetries between the deficient and strong pronouns, (38) is redundant. The first two clauses are reformulable as special cases of a more general positive constraint which forces deficient pronouns to occur in a given (functional) projection:

(39) Syntactic Asymmetry:

A deficient, but not a strong, personal pronoun:

- must occur in a special derived position
- is incompatible with c-modification, coordination.

2.3. Choice

As noted in fn. 5, (28c) is strongly idealised. The relevant paradigm is (“☞” denotes ostension):⁹

- | | | | |
|---------|------------------------|-------------|------------------------------------|
| (41) a. | Je {✓ I'} | ai aidé | {* elle}. |
| b. | J(e) {* LA} | ai aidé | {✓ ELLE}. |
| c. | J(e) {* ☞ la} | ai aidé | {✓ ☞ elle}. |
| d. | J(e) {* la et l'autre} | ai aidé | {✓ elle et l'autre}. |
| e. | J(e) {* seulement la} | ai aidé | {✓ seulement elle}. |
| | I | have helped | her / her and the other / only her |

That the post-participial variant of (42a) is impossible is *a priori* unexpected since the postverbal position is adequate for a strong pronoun. The comparison with (42b-e) brings a clear generalisation: The strong form is impossible where the deficient form is possible, and the strong form is possible where the deficient form is independently excluded: by contrastive stress (§2.4.1.), by an accompanying pointing gesture (§2.4.1.) or by coordination or c-modification (§2.2.3). Descriptively (cf. §7 for a more formal version):

(43) Choice of a pronoun:

Choose the most deficient possible form.

2.4. Semantics: Description

2.4.1. Prominent discourse referents

⁹ (42b) is more marked than the corresponding Italian (30c). Such variation is independent of the theory of pronouns: The same preferences obtain with contrasted full DPs. Cf. also fn. 35.

In turn, (42b-c) is somewhat idealised. It is not the case that deficient pronouns can never be contrastively focussed. (46a) for instance, severely contrasts with (46b-c):

- (45) a. *Jean LA voit.
 ✓ Jean voit ELLE.
 John sees her
- b. A: On a dit que **je** mangerai ce gateau demain.
 A: we have said that I will.eat this cake tomorrow
- ✓ B: Non, que **JE** mangerai ce gateau demain.
 B: no, that I will.eat this cake tomorrow
- ✓ A: Mais, non, que **JE** mangerai ... (etc.)
 A: but, no, that I will.eat

- c. A: Je **te** casserai la gueule!
 A: I you will.break the face
- ✓ B: Ah ouais? tu veux dire que je **TE** casserai la gueule! (ad lib.)
 B: oh yeah? You want to.say that I YOU will.break the face!

This state of affairs is not particular to prosody: The same holds with ostension, under “flat” intonation. In a limited range of contexts, a deficient pronoun may accompany ostension. (48a) contrasts with (48b,c):¹⁰

- (47) a. *J’ai vu Marie puis je ~~l~~’ ai vu.
 ✓ J’ai vu Marie puis j’ ai vu ~~elle~~.
 I have seen Mary then I her have seen her
- b. ✓ Mets-toi ici et regardes cette maison. Tu ~~la~~ vois bien maintenant?
 come here and look at this house. You it see well now?
- c. ✓ Mais, tu ne vois donc pas ce livre? Bien sûr que je ~~le~~ vois.
 but, you don’t see this book? of course that I it see

In both cases the generalisation is the same: *The deficient elements are permissible with {contrastive stress; ostension} only if they refer to an entity which is “already prominent in the discourse”*:^{11 12}

¹⁰ The same holds of third person pronouns w.r.t. focus:

- [i] A: Jean a dit que Pierre arrivera en premier.
 John has said that Peter will arrive as first
- B: Non, Jean a dit qu’ IL arrivera en premier.
 no, John has said that HE will arrive as first

When the contrast is realised, however, a deficient pronoun becomes impossible:

- [ii] B: * Non, Jean a dit qu’ IL (, pas son frère,) arrivera en premier (, pas son frère)
 HE (,not his brother) ...

We hypothesize that overt contrast (*pas son frère* in (ii)) is a case of c-modification: The contrastive phrase modifies the pronoun and thus systematically excludes deficient pronouns. The apparently discontinuous constituent, i.e. the extraposed contrasted phrase, is then similar to the English contrast [iii] (with *only* modifying the pronoun):

- [iii] a. John has only seen [t him].
 b.* John has only seen [t it].

¹¹ "Discourse" should not be restricted to linguistic events. It is possible to introduce an entity by gesture (ostension) and then refer to it by a deficient indexical.

For the discussion of the recoverability conditions on the antecedent, cf. Tasmowski-De Ryck & Verluyten (1982), who arrive at the same conclusion that “true pronouns [i.e. deficient pronouns, in our terminology, A.C. & M.S.] can only refer to something that is already familiar” (p. 341). It is however clear that much remains to be done to define what the conditions on “prominence” are.

¹² Several recent studies capitalise on a similar generalisation: Deficient personal pronouns are “specific” (e.g. Sportiche (1992), Uriagereka (1992)). There is unfortunately a lot of terminological confusion around this term. On the one hand, proponents of this view seem to understand “specificity” as Enç (1991), i.e. a term closely related to “old information” (among others, Uriagereka (op. cit.) explicitly relates it to notions such as “information already introduced in the discourse” (p. 8), “familiarity” (p. 14), “being anaphoric on [...] in the discourse” (p. 13), the “subject’s point of view” (p. 22), etc.; Diesing (1991) understands specificity in terms of “presuppositionality”). On the other hand, “specificity” has widely been understood *literally* (i.e. x is specific iff x is unique and x is “well-defined”), maybe due to the semantics of personal pronouns *per se*, which tend to be definite, irrespectively of their strong / deficient status.

The latter (literal) understanding brings a wrong generalisation about deficient personal pronouns: It is not the case that deficient pronouns always refer to an entity which is both unique and well-defined, i.e. literally specific. Counterexamples abound, among which non-referential pronouns (i.e.: *les Siciliens a peine ils te voient ils t’embrassent* ‘the Sicilians, as soon as they see you, they kiss you’, and other cases discussed in §2.4.3., §2.5.), and non-definite pronouns (*des touristes, à Venise, j’en ai vu plein* ‘tourists, in Venice, I have seen plenty’, *intelligent? Pierre*

(49) *Semantic Asymmetry #1:*

Deficient personal pronouns must have an antecedent prominent in the discourse.

The a-examples of (46) and (48) are impossible to the extent that contrastive stress and ostension usually refer to an entity non-prominent in the discourse, while the b- and c-examples are constructed such that the referent of the deficient pronoun is the prominent topic of discourse.

It is thus not the case that strong pronouns have any special ability to be stressed or used in ostension. Both deficient and strong pronouns are identically stressable and usable in ostension. Strong pronouns are more frequent than deficient pronouns in these constructions only because they are able to refer to a non-prominent discourse referent.¹³

2.4.2. Expletives

Expletive and quasi-expletive constructions always require personal pronoun subjects to be deficient. Strong pronouns are uninterpretable in these non-referential positions:¹⁴

- (51) a. ✓ Il est arrivé un grand malheur.
 ** Lui (il) est arrivé un grand malheur.
 he (he) is arrived a big disaster
- b. ✓ Il pleut.
 ** Lui (il) pleut.
 he (he) rains

2.4.3. Impersonal constructions

The same holds of impersonal interpretation both with the deficient *on* in (54) (which has no strong counterpart), and with third person plural pronouns, (56). Again, only the deficient form is possible in a non-referential context, and strong forms are uninterpretable, either as doublers of the deficient subject or by themselves:¹⁵

		impersonal interpret.	referential interpret.
(53)	On t'a vendu un livre pas cher. they _{non-ref} / we _{ref} you have sold a book not expensive	✓	✓
(55) a.	Ils m'ont vendu un livre pas cher.	✓	✓
b.	Eux ils m'ont vendu un livre pas cher.	*	✓
c.	Eux m'ont vendu un livre pas cher. they me have sold a book not expensive	*	✓

2.4.4. Non-referential datives

Contrary to other pronominal objects, non-argumental datives such as the boldfaced French and Slovak pronouns in (58):

l'est sans aucun doute 'intelligent? Pierre it is without doubt', *la bière, s'y digère-t-elle mal?* 'the beer, *se* there digests badly?', etc.).

On the other hand, when understood correctly (i.e. non-literally), "specificity" of deficient pronouns is identical to the text generalisation, (50).

- ¹³ This is strikingly shown by the fact that when the referent of the focalised pronoun is prominent in the discourse, the strong form is NOT possible, in accordance with the choice-principle (44). Only [ia] is a possible continuation in the "dialogue" below:

- [i] Je te casserai la gueule.
 a. Tu parles, je ✓TE casserai la gueule.
 b. Tu parles, je casserai la gueule *A TOI.
 you bet, I YOU will.break the face TO YOU

This rather clearly illustrates that there is no preference to stress strong forms, but rather that two independent factors intervene: (a) deficient pronouns are limited w.r.t. their referent, (b) whenever possible, a deficient pronoun is chosen over a strong one.

- ¹⁴ The same holds of deficient subjects in Northern Italian dialects (P. Benincà (p.c.)), cf. §3.1.

- ¹⁵ This is one of the many cases in which deficient pronouns are restricted to [+human] reference (see fn. 59 for an account of this particular case).

- (57) a. Je vais **te** lui foutre une de ces claque !
 b. Ja **ti** mu dâm takú facku !
 I will you him give such a smack !
 'By Joves, I'll give him a blow he'll remember !'

do not have any referent. They are rather similar to “discourse-particles”. Such an interpretation is totally impossible with strong pronouns: ¹⁶

- (59) a. * Je vais lui foutre une de ces claque **à toi** !
 b. * Ja mu dâm takú facku **tebe** !
 I will him give such a smack to you!

2.4.5. [±Human]

The differing behaviour of deficient and strong pronouns w.r.t. human referents is amply illustrated in the introductory examples (§1): Strong forms, contrary to deficient forms may not refer to non-human entities (the reverse is not true, cf. also fn. 15). ¹⁷

2.4.6. Summary

The surface interpretive asymmetries involving deficient pronouns are: ¹⁸

		semantics				
		must have D-antecedent (i.e. ostension, contrast, etc.)	expletive	impersonal	non-referential dative	possibly non- human
personal pronouns	strong	—	—	—	—	—
	deficient	+	+	+	+	+

¹⁶ The non-referential datives are to be kept apart from benefactive (/ethical) datives, which are equally non-argumental but which are referential to the same extent as other deficient pronouns. They always refer to a “benefactor”. The two constructions are often found in minimal pairs such as:

- [i] a. Je vais me manger un pomme. (benefactive)
 I will me eat an apple
 'I will eat myself an apple'
 b. Je vais te manger une (de ces) pommes! (either
 benefactive or non-referential)
 I will you eat an apple
 'I will eat one of your apples' (benef.) / 'I tell ya, I'm gonna eat an apple like...' (non-ref.)

The gloss of the non-referential examples is misleading: In the non-referential reading, these examples involve no second-person addressee. There is no referent to these pronouns, not even derivatively.

¹⁷ The asymmetry between some pronouns being able to refer only to human entities and other being able to refer to non-humans is noted from the earliest stages of grammatical research.

For instance the *Grammaire Générale et Raisonnée de Port-Royal*, Arnauld & Lancelot (1846:319) devotes a whole section to the phenomenon, quoting Regnier who notes *inter alia* that: “*lui, elle, eux, elles*, avec des prépositions, ne se disent guère que des personnes. [...] Ainsi on ne dira pas d'un arbre près de tomber, *n'approchez pas de lui*” (*him, her, them* (masc.), *them* (fem.), with prepositions, are only used for persons. Accordingly, one would not say of a tree about to fall, *do not approach of him*).

This asymmetry has then repeatedly been noted 'in passing' (cf. Damourette & Pichon (1911/1952), Perlmutter & Oresnik (1973:439), Kayne (1975), Jaeggli (1982:41), Rizzi (1982), Zwart (1992), Haegeman (1994)) and has only recently received closer attention: cf. Berendsen (1986), Schroten (1992), Corver & Delfitto (1993).

¹⁸ As a further semantic property, idioms often distinguish two series of pronouns (i.e. the two series are not interchangeable in idioms). This does not add anything beyond (re-)making the point that the distinction between the two classes is valid. Cf. Berendsen (1986), quoted in Zwart (1992), for Dutch.

2.5. Semantics: Range

Although descriptively correct (to the best of our knowledge), the preceding generalisation (62) is redundant.

2.5.1. The ban on strong pronouns as expletives and as arbitrary subjects of impersonals repeats twice the same fact: A strong element is incapable of being a semantically vacuous subject, it must be referential. Deficient elements on the other hand do not need to be referential and can be semantic dummies.

2.5.2. Similarly, strong pronouns are capable of being referential without being associated with an antecedent prominent in the discourse. Deficient pronouns cannot refer unless they are associated with such an antecedent. Again, strong pronouns are referential in a way in which deficient pronouns are not

To capture the uniform asymmetrical behaviour of the two classes of pronouns with respect to “referentiality”, unifying expletives, impersonals, and the need for a prominent discourse antecedent, some notion of “referential deficiency” is needed. Deficient pronouns are, in some sense to be defined, “less” referential than strong pronouns. They do not need to refer, and upon doing so, are dependent on the presence of an antecedent.¹⁹

2.5.3. Non-referential datives are one more instance of the same pattern: Only deficient pronouns can be non-referential. Strong pronouns, as with expletives and impersonals, are incapable of occurring in referentially vacuous contexts.

2.5.4. The notion of "referential deficiency", or "being less referential than" is obviously far too vague as such. The comparison of impersonal and generic pronominal subjects however allows a much more precise characterisation of the semantic difference between deficient and strong pronouns.

Impersonal and generic pronominal subjects are similar in not being strictly referential (without being expletives), but minimally differ in that generic subject pronouns, contrary to impersonal ones, may be strong:

- (63) a. (***Eux**) ils m'ont vendu des livres écornés. (impersonal 3.pl. pron)
they they me have sold some books rotten
b. *Les temporaires*, (**eux**) ils me vendent toujours des livres écornés. (generic 3.pl. pron)
the temporaries they they me sell always books rotten
c. *A NY*, **toi t'es / vous vous** êtes à peine arrivé(s), que les autres y sont d'ja tous à la sortie.
in NY you(impersonal) are just arrived, that the others are already all in the exit (generic 2.sg/pl. pron)
d. **Les carottes** sont bonnes pour tes yeux. (lexical generic)
the carrots are good for your eyes

2.5.5. Since there is no clear sense in which the boldfaced pronouns of (64b-c) are more referential than that of (64a), non-referentiality as such cannot be the reason for the inacceptability of (64a). The impossibility of strong pronouns as impersonals must be linked to some other property distinguishing generic from impersonal constructions. There are (at least) five such differences: ²⁰

¹⁹ Specificity, *viz* needing a discourse antecedent (cf. fn. 12), has often been attributed to the *presence* of a feature (cf. Sportiche (1992), Uriagereka (1992) among others). The fact that there should be one common explanation to the possibility of deficient (as opposed to strong) pronouns as expletives and to their need of a discourse antecedent, renders it improbable that these properties be due to the presence of some feature. It is not very likely that the capacity of occurring as an expletive subject is rendered possible by the presence of a feature. It thus follows that specificity should be rather attributed to the *absence* of some feature / property in deficient pronouns. If there is some feature / property in strong pronouns which forces referentiality, it is its *absence* in deficient elements that allows them to be non-referential and forces them to seek an antecedent in order to be referential.

²⁰ Cinque (1988) notes the first four differences. The fifth difference is discussed for lexical generics and for 2nd person singular generic pronouns by Brugger (1990).

- (i) impersonal subjects are existentially quantified, generic subjects universally
- (ii) impersonal reading requires specific time-reference while genericity forbids it
- (iii) impersonal but not generic subjects must be underlying subjects (of non-ergative verbs)
- (iv) impersonal but not generic subjects forbid inclusion of the speaker in their reference
- (v) impersonals forbid but generics require a range-restriction on the subject
(which comes either from a dislocated noun-phrase, (64b), an adverbial, (64c), or the lexical content of the generic itself, (64d))

The exclusion of strong pronouns as impersonal but not as generic subjects cannot be due to one of the first four properties of impersonals. Strong pronouns may have existential import, are not incompatible with specific time-reference, are not restricted to underlying subjects, and may refer to the speaker.

2.5.6. The fifth property describes the fact that a generic sentence is acceptable only if some property / range (other than that contained in the predicate) is associated with its subject: (64b-c) are not acceptable as generics if the italicised phrases are absent (lexical generics of the type (64d) trivially always have a range). On the other hand, impersonals do not require any such range restriction: No other property than that of having sold a cheap book is associated with the subject of (64a).

Not only *can* impersonal subjects be rangeless, but they *always* are so:

- (65) a. They have cleaned a cow today in Switzerland.
b. They usually clean cows in Switzerland.

In its impersonal reading, starting a discourse with (66a), or its French, Italian or Slovak counterparts, does not imply anything about the cleaners: Anybody could have done the cleaning, i.e. (66a) means something like 'somebody, whoever, cleaned a cow today, and this event of cow-cleaning-today took place in Switzerland'. But (66b) requires the cleaners to be inhabitants of Switzerland (in a broad sense of the term). In other words, the generic subject but not the impersonal subject is associated with the range-restriction *in Switzerland*. *No restriction is ever associated with the subject of impersonal constructions*, even if adverbials are present.²¹

2.5.7. Since no range-restriction is associated with (quasi-)expletives either, the property *having a range* correctly draws the line between those constructions which exclude strong pronouns (expletives and impersonals) and those which allow them (generic and referential contexts):

- (67) a. subjects of impersonal and expletive constructions are never associated with a range-restriction
b. subjects of generics and referential subjects are always associated with a range-restriction.

2.5.8. Thus, *not being associated with a range* seems to be the appropriate formulation of *being referentially deficient*. Strong pronouns, since they cannot be expletive or impersonal, must always be associated with some range. Deficient pronouns, since they cannot be interpreted without a (non-deficient) antecedent, never have their own range-restriction, but rather associate to that of their antecedent.²²

The following generalisation now correctly brings together the four initial asymmetries (regarding prominent antecedents in discourse, expletives, impersonals, non-referential datives), without overgenerating:

²¹ Existential bare plurals are an intermediate object between impersonal pronouns and generics: They share with impersonals all above properties except that of (a) not being restricted to deep subject position, (b) always having a restrictor (the lexical element itself). Under a broader view of "strong" elements not restricted to pronouns (§9), they are strong elements. From the minimal pair formed by impersonals and existential bare plurals, only two properties qualify for the ban on strong pronouns: deep subjecthood and restrictors. Again, only the latter is plausible.

Past tense cannot be the restrictor in (64a) since it is incapable of being the restrictor of a generic (while being compatible with genericity): **(in NY), you couldn't walk alone*.

²² A formulation in terms of "range" is also empirically much superior to one in terms of "reference": The former but not the latter correctly subsumes all non-referential deficient elements which nevertheless require a discourse antecedent, such as the partitive pronoun *en / ne* of Romance, or predicative deficient pronouns (cf. fn. 12).

(69) *Semantic Asymmetry #2:*

- a. Deficient pronouns are incapable of bearing their own range restriction
(and are therefore either rangeless (expletives, impersonals, non-referential datives),
or associated with the range-restriction of an element prominent in the discourse)
- b. Strong pronouns always bear their own range-restriction.

2.5.9. More speculatively, the fact that strong pronouns always require a range could be extended to the last semantic property distinguishing the two series, [\pm human] reference, thus extending the generalisation fully. If strong pronouns must always have a range, independently of that of an antecedent, they are faced with a contradiction: Having no nominal head including a range, they must contain a range but do not contain one. In this case, [+human] may simply be the default-range of human language. Again, the meaning of “having a range independently of that of an antecedent” can only be clarified within a formal proposal, §5.4.

In sum, all semantic properties distinguishing strong from deficient pronouns reduce to a single primitive: having a range or not. The precise grammatical representation of these generalisations is taken up in §5.

2.6. Phonology and prosody

Phonological processes such as sandhi rules distinguish strong from deficient elements. French liaison seems to apply only with deficient elements. It is grammatical in the simple sentence (72a), where the pronoun *elles* may be analysed as deficient, but ungrammatical in the preverbal position of complex inversion, which requires strong pronouns (cf. *Lui* / **Il a-t-il dit la vérité?* ‘he has-he said the truth?’) (underlining in (72) indicates that the final consonant is pronounced):

- (71) a. ✓ **Elles** ont dit la vérité.
 b. * Quand **elles** ont-elles dit la vérité?
 when they have-they said the truth?

Contrary to strong pronouns and nouns, deficient pronouns are able to form a single prosodic unit with an adjacent lexical element. This is independent of the prosodic weight of the (pro)nominal: The proper name *Al* contrasts with the pronoun *il*. The relevant prosodic domains are taken to be as indicated by underlining:

- | | | |
|---------|-------------------------------------|--------------------------------------|
| (73) a. | <u>Al</u> <u>mange</u> beaucoup. | a'. Jean <u>voit</u> <u>Anna</u> . |
| b. | ☞ <u>Lui</u> <u>mange</u> beaucoup. | b'. Jean <u>voit</u> ☞ <u>elle</u> . |
| c. | <u>Il</u> <u>mange</u> beaucoup. | c'. Jean <u>la voit</u> . |
| | Al / he eats a lot | John her sees Anne / her |

Finally, reduction phenomena are only found with deficient pronouns; in English, for instance, strong pronouns (e.g. in a coordination) cannot undergo reduction: ^{23 24}

- (75) a. ✓ I saw 'ya in the garden.
 b. * I saw 'ya and John in the garden.
 c. ✓ I saw you and John in the garden.

These asymmetries may be subsumed under (78), again a general notion to be clarified by the theory (cf. §5.5 for a tentative proposal): ²⁵

²³ The link between the (syntactic) property of being strong / deficient and the (prosodic) property of destressing and of contraction, seem to be one of the rare very robust cross-linguistic syntax-prosody correspondances.

²⁴ If only deficient pronouns may be destressed and contracted, then this is the strongest evidence for the existence of an otherwise quasi-untestable systematic homonymy of strong and deficient pronouns in English: Pronouns such as *him* may both be coordinated (and are therefore strong) and may form a unique prosodic domain with a left-adjacent verb (and are therefore deficient), cf. fn. 1.

- (77) *Prosodic asymmetry:*
Deficient but not strong pronouns may prosodically restructure.

This is, to our knowledge, the only prosodic asymmetry between strong and deficient pronouns (cf. §2.8).

2.7. Summary

The asymmetry between those pronouns which can, and those which cannot, be coordinated is perfectly correlated to a large number of other asymmetries, both syntactic, semantic, prosodic and morphological, uniform across widely different languages. These asymmetries divide into two types: relational properties, which link the two series, (80), and monadic properties, holding of one series but not of the other series, (82):

- (79) a. deficient pronouns *are reduced w.r.t.* strong ones, if a difference obtains (morphology)
b. where possible, deficient pronoun *are preferred over* strong ones (choice)
- (81) a. only deficient pronouns must occur at S-structure in a special derived position (syntax)
-> cannot occur in base position, dislocation, cleft, etc.
b. only deficient pronouns cannot be coordinated and c-modified (syntax)
c. only deficient pronouns may prosodically restructure (prosody)
-> liaison, reduction processes, prosodic domains
d. only strong pronouns bear their own range-restriction (semantics)
-> prominent discourse-antecedents (ostension, contrastive focus), expletives, impersonals, non-referential datives, reference to human entities only

The trigger of these asymmetries is exceptional not only in having such wideranging and crosslinguistically uniform consequences, but also in being a purely grammatical, i.e. abstract property, not correlated to any interpretational feature. This last point is illustrated both (i) by the fact that none of the surface interpretational asymmetries of (82) strictly covaries with the class distinction (the possibilities of the two classes overlap), and (ii) by the fact that both semantic and phonological features are present: Given the strict disjointness of semantics and phonology, a trigger which is purely internal to one of the two would not explain the properties of the other component (cf. also fn. 26).

2.8. Annexe: Against “focus”

2.8.1. Due to what is probably a historical accident, the (inaccurate) generalisation that deficient pronouns cannot be stressed has come to be viewed as a fundamental property of deficient elements. Informally, the fact that deficient pronouns do not occur coordinated, modified or with ostension, has been linked with the fact that deficient elements mostly occur unstressed, resulting in the claim that deficient pronouns do not occur in these cases *because* deficient pronouns cannot be (contrastively) stressed. Given the historical importance of this view, some space is devoted here to show that under none of its instantiations can this view be sustained.²⁵

2.8.2. Once explicited, the reasoning seems to be:

- (i) deficient pronouns (contrary to strong pronouns) cannot bear contrastive stress.

Together with the implicit assumption that

- (ii) strong pronouns occur only where the deficient form is impossible (= (44)),

²⁵ We are here borrowing and slightly changing a term from Nespor & Vogel (1986). A more precise version of this constraint would require data about prosody which do not seem to be available.

²⁶ In its more radical versions, this proposal seeks to derive all asymmetries linked to deficient pronouns from the unstressed nature of the latter. (This is most prominent in languages in which deficient elements are limited to roughly the second position of the clause, as in many Slavic languages. On the empirical inadequacy of this approach, cf. *inter alia* Toman (1993)). Such an account is inadequate *in principle*: If prosody and semantics are not directly linked, postulating a unique prosodic trigger would leave semantic properties unexplainable, and postulating a semantic trigger would leave prosodic properties without a possible explanation.

- (i) would unify all cases, provided that
 (iii) all contexts excluding deficient pronouns assign / require contrastive stress (overt in (42b)).

2.8.3. Since the assumptions (ii-iii) imply that strong pronouns are always contrastively stressed, the entailed surface generalisations are that:

- (83) a. deficient pronouns are never contrastively stressed
 b. strong pronouns are always contrastively stressed.

Because contrastive stress involves both prosody (*prosodic focus*) and semantics (*semantic focus*), (84) can be taken to be a generalisation either about semantics, or about prosody:

- (85) a. deficient pronouns are never {semantically / prosodically} focussed.
 b. strong pronouns are always {semantically / prosodically} focussed.

2.8.4. Prosodic judgments (§2.8.5), semantic judgments (§2.8.6), and distributional facts (§2.8.7) all invalidate (86). None of the four generalisations involved are correct statements about the prosody and semantics of personal pronouns. Ultimately, both the hypotheses (i) and (iii) above are too strong.²⁷

2.8.5. Against prosodic focus

a) *Unstressed strong*. The version of (86) which chooses prosodic focus as the primitive for (42) is the less defensible of the two.

It entails that all coordinated pronouns, modified pronouns, post-prepositional pronouns, clitic-left dislocated pronouns, pronouns with ostension, etc. are always prosodically focussed. But this does not seem the case. The most minimal pair is given by ostension and contrastive stress (i.e. 42b-c): In *d'abord j'ai vu Jacques et ensuite j'ai vu lui* 'first I saw John, and then I saw him', the two objects may have similar flat prosodies, while still excluding deficient pronouns. Simpler examples making the same point include most modified pronouns such as *Jean a vu seulement lui* 'John has seen only him'. The (absence of) prosodic accentuation on such modified pronouns contrasts very clearly with the strong prosodic accentuation in constructions such as (42b). To unify the fact that both prosody-neutral ostension and contrastive stress legitimate a strong pronoun, a primitive different from prosodic focus is needed. (Prosodically unstressed strong pronouns are also clearly found in Italian left dislocation, cf. (94) below.)

b) *Stressed deficient*s. Deficient pronouns are not always prosodically inert. They may bear both word-stress and phrasal stress:

- (87) a. **Essi** vanno in chiesa. (word-stress)
 they go to church
 b. Non parlerò mai **loro**. (phrasal stress)
 non I.will.speak never to.them
 c. Mais regarde-**le** ! (phrasal stress)
 but regarde-him

Examples discussed above (§2.4.1) show that deficient pronouns may also bear the strong prosodic focus associated with contrastive stress.

Since strong pronouns can be prosodically unaccented and deficient pronouns can be prosodically strongly accented, prosody cannot be the underlying factor guiding the distribution of deficient and strong pronouns.

2.8.6. Against semantic focus

²⁷ The simplest (and weakest) argument of all against both the semantic and the prosodic version of the claim that deficient forms are non-focussed stems from the observation that the strong contrastive stress present in (42b) is uncontroversially not required in the other contexts excluding deficient pronouns. One is then forced to invoke the existence of a lighter form of focus which excludes deficient elements and is present in all other cases.

a) *Contrastive deficient*. That deficient pronouns are never semantically focussed, is again incorrect. Examples (46) above show that deficient pronouns are perfectly compatible with contrastive focus, whenever the appropriate (independent) discourse conditions are satisfied:²⁸

(89) a. ✓ B: Non, que **JE** mangerai ce gateau demain. (cf. (46b))
B: no, that I will.eat this cake tomorrow

b. ✓ B: .. je **TE** casserai la gueule ... (cf. (46c))
B: ... I YOU will.break the face

This alone falsifies the semantic version of (86).

b) *Non-contrastive strong*. The claim that all strong pronouns are always semantically focussed, is slightly more difficult to disprove. This is due to the fact that it is always possible to construe a semantic contrast. In the absence of overt (observable) manifestations of such contrast, the only possible direct argument against such claim is the equally untestable observation that many cases of coordination, clitic-left dislocation, etc. do not involve a greater dose of semantic focus than the usual use of a deficient element. The clearest case of all is that of prepositions. There is no sense in which the pronominal object of a preposition must always be semantically contrasted.

Under a flat intonation, the following example illustrates this point twice: The strong object of P, *eux*, and the strong coordinated subject, *lui*, receive no more semantic focus than the deficient object, *le*:

(91) ✓ **Lui** et Marie l'avaient fait bien avant **eux**.
he and Mary it had done well before them

In Italian, left-dislocated strong pronouns may cooccur with a contrastively focussed constituent: Given the generalisation that only one constituent per sentence may be contrasted through displacement to the left-periphery of its clause, the left-dislocated *lui* cannot be contrasted:

(93) ✓ **Lui**, QUESTO ha detto.
he, THIS has said

Again, semantic focus cannot be the primitive that excludes deficient pronouns from being objects of prepositions, occurring in coordination or in left-dislocation, since no semantic focus is involved in these constructions. A primitive distinct from semantic focus is needed.

2.8.7. Strong pronouns are not focussed: GUN

A stronger argument to the effect that strong pronouns do not necessarily involve focus (semantic or prosodic) is provided by distributional facts from languages which overtly show both semantic and prosodic contrast through syntactic displacement of the contrasted element. In these languages, all focussed elements are displaced, but it is not the case that all strong pronouns are displaced. Strong pronouns therefore occur independently of focus (semantic or prosodic).

One such language is Gun, a rigid word-order African language of the Kwa family with a special focus-construction. In case an element is focussed, semantically or prosodically, a particle, *wè*, appears towards the front of the clause, and the focussed element obligatorily precedes it (the focussed argument is underlined):²⁹

(95) a. ✓ N mon Mari. c. * Mari wè n mon.
b. * N mon Mari. d. ✓ Mari wè n mon.
I saw Mary Mary FOC I saw

Constructions with coordination pattern exactly with those without coordination: An unstressed coordinated object, just as its non-coordinated counterpart, remains in situ (98a, c), while a stressed coordination must be placed in front of the focus-particle, (98b, d). Now the vital fact is that focus on only ONE conjunct DOES trigger anteposition to the focus position. From this it follows that neither of the conjuncts of (98a) receives focus. Therefore coordination, in Gun, does not assign / require focus on the conjuncts, and the strong pronoun in (98a) is not focussed:

²⁸ Another example of stressed deficient pronouns is reported in Zwart (1992: fn. 9).

²⁹ We owe these paradigms to the kindness of Enoch Aboh (who is not responsible of the use we make of them).

- (97) a. ✓ N mon [Mari kpo éo kpo].
 b. * N mon [Mari kpo éo kpo].
 I saw Mary and him and
- c. * [Mari kpo éo kpo] wè n mon.
 d. ✓ [Mari kpo éo kpo] wè n mon.
 Mary and him and FOC I saw

But, as a final stone to our demonstration, deficient elements in Gun still cannot be conjoined, cf. (100)-(102=16):

- (99) a. ✓ N mon **éo**.
 b. ✓ N mo-**é**.
 I saw him
- c. ✓ N mon [Mari kpo **éo** kpo].
 d. * N mon [Mari kp(o)-**é** kpo].
 I saw Mary and him and
- (101) a. ✓ **Yélè** yon wankpè.
 b. * **Yélè kpo yélè kpo** yon wankpè.
 she[-human] and she and know(s) beauty

In these two cases, the non-coordinable deficient elements cannot be excluded by semantic or prosodic focus, since the lack of displacement overtly shows that no such focus exists. There must exist some γ distinct from semantic and prosodic focus which is capable of excluding deficient elements from coordination.³⁰

2.8.8. The idea that deficient pronouns are somehow handicapped w.r.t. semantic or prosodic focus, popularised by the traditional account of the distribution of pronouns, is an artefact due the deficient pronoun's need of a prominent discourse antecedent, requirement mostly incompatible with the use of contrastive stress and ostension (cf. §2.4.1). As a result, both the premise and the conclusions of the traditional arguments are inaccurate.³¹

3. TWO TYPES OF DEFICIENCIES

3.1. Regular tripartitions

The partition of pronouns into two abstract classes, deficient and strong, is descriptively insufficient: Regularly, pronominal systems divide into three distinct distributional patterns. The following are five among the numerous examples in which a language possesses three distributional paradigms. In each case, confronting the a- and the b-examples produces three patterns:

- (103) OLANG TIROLESE (Oberleiter & Sfriso (1993))
- | | | | | |
|-----------------|------|--------------|---------------------------|--------------------|
| a. ✓ E:r | isch | intelligent. | b. ✓ E:r und si: | sain intelligent. |
| | he | is | | he and she |
| | is | intelligent | | are intelligent |
| ✓ Es | isch | toire. | * Es und es | sain toire. |
| * S | isch | toire. | * ..., daß z und z | toire sain. |
| | it | is | | ... that it and it |
| | | expensive | | expensive are |
- (105) ITALIAN (Cardinaletti (1991))
- | | | | | | |
|--------|----------------|------------------|-------------|------------|---------------|
| a. Non | *a lui | dirò mai | *a lui | tutto | a lui. |
| Non | *loro | dirò mai | loro | tutto | *loro. |
| Non | gli | dirò mai | *gli | tutto | *gli. |
| no | to.him/to.them | I.will.say never | | everything | |

³⁰ Exactly the same argument holds of modification: Modifying a strong pronoun by c-modifiers such as *also* does not provoke anteposition and appearance of the focus-particle. But deficient pronouns are still excluded from such contexts.

³¹ The Gun facts together with the French contrasted clitics (§2.4.1) lock up the back door which consists of postulating diverse types of focus and claiming that the above discussion is inconclusive because it fails to distinguish them. From the French facts it would follow that if there are two such types of focus, one of them, C, has the property of being compatible with deficient pronouns while being understood as contrastive. The other, F, is not contrastive but excludes deficient pronouns. Now in Gun, the C-type of stress would both trigger anteposition and be compatible with deficient pronouns. But this is a wrong conclusion: There is no stress which licences anteposition of deficient pronouns in Gun.

b. ✓	Non	dirò mai	tutto	a lui e a lei.
*	Non	dirò mai	loro e loro	tutto.
*	Non	gli e le	dirò mai	tutto.
	no	to.him and to.her I.will.say nevereverything		

(107) SLOVAK

- a. ✓ **Jemu** *to* bude pomáhat'.
 ✓ **Ono** *mu to* bude pomáhat'.
 * **Mu** *to* bude pomáhat'.
 to.him / it / to.him it will help
- b. ✓ **Jemu** a Milanovi *to* bude pomáhat'.
 * **Ono** a to druhe *mu* budu pomáhat'.
 * **Mu** a jej *to* bude pomáhat'.
 to.him and to M. / it and the other / to.him and to.her it will help

(109) ITALIAN VS. TRENTINO

- a. ✓ **Lui** mangia della zuppa e — beve del vino. (Italian)
 ✓ **Egli** mangia della zuppa e — beve del vino. (Italian)
 he eats of.the soup and drinks of.the wine
- * **La** canta e — bala. (Trentino)
 she sings and dances
- b. ✓ **Lui** e la ragazza del bar sono gli unici ad apprezzare tutto questo. (Italian)
 he and the girl of.the bar are the only to appreciate all this
- * **Egli** e il cavalier Zampieri sono gli unici ad aver apprezzato quel nobile gesto. (Italian)
 he and the *cavalier* Z. are the only to have appreciated this noble action
- * **La** e la Maria è vegnude algeri. (Trentino)
 she and the Mary are come yesterday

(111) FRENCH

- a. ✓ **Lui** aime les choux mais — ne les mange que cuits? b. ✓ **Lui** et son frère ont accepté ?
 ✓ **Il** aime les choux mais — ne les mange que cuits? * **Il** et son frère ont accepté ?
 * Aime-t-il les choux mais ne les mange que cuits? * Ont il et son frère accepté ?
 he likes the cauliflowers but not them eats other than cooked he and his brother have agreed?

The tripartitions of pronominal systems are extremely regular across and within languages:

(i) out of all the possible combinations of strong and deficient (personal) pronouns inside a tripartite paradigm, only one is attested: one strong and two deficient. It is never the case that a tripartition stems from there being two strong and one deficient pronoun, etc. Similarly, it is never the case (to our knowledge) that there is more than three classes, with two types of strong and two types of deficient pronouns, etc.

(ii) out of all the possible relations between three pronouns, only one obtains, identical across all paradigms. It is not the case, as might be expected, that the two deficient pronouns are simply opposed to the strong series, as represented by $\{x_D, y_D\}$ vs. z_S . What systematically obtains is a hierarchy of the type $x_D < y_D < z_S$, where x_D is the pronoun in the third example of each paradigm, and z_S in the first. The second pronoun is systematically intermediate between the first, strong, pronoun and the third, sharing the properties characterising deficiency with the third against the first (here exemplified by lack of coordination), but sharing some distributional properties with the first, against the third. In other words, what systematically obtains is a ranking in deficiency: The pronoun in the third example is systematically “more deficient” than the pronoun in the second example.

(iii) by themselves, the preceding regularities strongly indicate that the tripartition reflects the existence of three abstract classes of pronouns (rather than being due to the existence of two abstract classes - deficient and strong - plus a series of idiosyncratic and irregular properties among deficient pronouns). The strongest evidence to this effect is however the fact that each series has uniform properties across paradigms: In each case above, the pronouns contained in the second sentence (y_D : *es, loro, ono, egli, il*) share properties which distinguish them from the pronouns contained in the third sentence (x_D : *s, gli, mu, la, il*). The properties opposing the two classes of deficient pronouns, properties differentiating so to speak “severely” deficient pronouns (i.e. x_D above) from “mildly” deficient pronouns (i.e. y_D above), are briefly summed up below, but are discussed in details in Cardinaletti & Starke (1995) for Germanic paradigms, and in Cardinaletti & Starke (1994b) for Romance languages (cf. also Cardinaletti (1993)).

Terminology. To distinguish the two types of deficient elements, we will borrow two terms often used as designations for deficient elements: clitic elements and weak elements. Although these terms are

usually understood as interchangeable, here they acquire two distinct meanings: 'Weak pronoun' refers to the set of mildly deficient pronouns illustrated in the second line of each above example (y_D), while 'clitic pronoun' is reserved to the severely deficient pronouns in the third (x_D).

3.2. {Clitic} vs. {weak; strong}: Severe deficiency

3.2.1. In each of the above cases the clitic heads an X° -chain. In Olang Tirolese, the head status of the clitic *s* is evidenced by its impossibility in XP-positions such as the V2-initial position, (104a). For the Italian objects in (106), the same point is most clearly illustrated by the fact that the clitic is "transported" by the verb over the realised subject in conditional inversions, *gli avesse Gianni parlato in anticipo, niente sarebbe successo* 'to.him had John spoken in advance, nothing would have happened', i.e. 'had John spoken to him in advance, ...'. In Slovak, the second-position clitics strongly amalgamate with the verb when enclitic, and pattern together with "clitic" verbs, particles, etc., themselves clear heads. Finally, the Trentino *la* and French postverbal *il* in (110) and (112) are standardly analysed as heads, cf. among others Brandi & Cordin (1981, 1989), Rizzi (1986b), Poletto (1993) for Northern Italian and Kayne (1983), Rizzi (1986b) for French.

On the other hand, weak pronouns uniformly occupy positions which seem to be those of maximal projections:

- the V2-initial position in Olang-Tirolese, (104a), where only full phrases can appear;
- the specifier position of an intermediate functional projection in Italian (cf. (106a) in which *loro* is both (i) not picked up by the verb (contrary to clitic pronouns), and thus not adjacent to the verb, and (ii) in complementary distribution with an object floated quantifier (a maximal projection containing a trace): cf. *??Dirà loro tutto Gianni* 'will.tell to.them all John';
- the sentence-initial position in Slovak (*ono* being the only Slovak deficient pronoun to be able to appear there), a position which is only available to topicalised and subject XPs (except for the special case of verb-inversion).
Embedded contexts make this point even more clearly: In strings of the type ... $C^\circ \alpha$ *clitic* ..., the element α must be either itself a clitic (clustering with the subsequent *clitic*) or *one and only one* XP. Since the sequence ... C° *ono clitic* ... is possible, while *... C° *XP ono clitic* ... is impossible, *ono* can only be an XP;
- the shared subject of a predicate coordination in Italian and in formal French, (110a)-(112a), a position available to XPs but not to heads.³²

3.2.2. The two series differ w.r.t doubling: Doubling is always *clitic*-doubling, in the sense that doubling must always involve (at least) one clitic, no combination of weak and strong pronoun is

³² The recognition of a class of weak pronouns distinct from clitic pronouns, but also deficient, allows:

(i) a principled approach to the traditional mystery of French object "enclitics" in imperatives: The first and second person pronouns are intermediate between usual French clitic pronouns (both are deficient, i.e. non-coordinable, etc.) and strong pronouns (the enclitics share their morphological form with the latter). In the present approach, such "enclitics" are really weak pronouns. The accusative paradigm is *me* 'me' (clitic), *moi* 'me' (weak), *moi* 'me' (strong), much like English or German, which have homophonous weak and strong object pronouns (*him-him, ihn-ihn*, cf. Cardinaletti & Starke (1995)). The dative distinguishes the three forms: *me* 'to.me' (clitic), *moi* 'to.me' (weak), *à moi* 'to me' (strong). The relevant difference between "proclisis" and "enclisis" must therefore be that imperatives, for some reason to be determined, render the clitic form impossible, and therefore the choice principle (44) forces the next stronger form, weak pronouns (see also Laenzlinger (1994) for a treatment of these facts in terms of the clitic / weak distinction);

(ii) a principled approach to the less-noted fact that Italian deficient pronouns split into those which must be adjacent to the verb, and those which are not (nominative *egli, essi*, dative *loro*, etc.), the former being clitics and the latter weak.

For more details on both these points, cf. Cardinaletti & Starke (1994b).

possible. This is neatly illustrated with the Italian dative paradigm, in which the {*gli*; *loro*} and the {*gli*; *a loro*} pairs are possible doubling pairs, but {*loro*; *a loro*} is impossible:

- (113) a. ✓ Gliel'ho dato loro.
 to.him it I.have given to.them
 b. ✓ Gliel'ho dato a loro / ai bambini.
 to.him it I.have given to them / to the children
 c. * L'ho dato loro a loro / ai bambini.

A similar constraint holds of the Slovak *ono*, which is found doubled by the clitic *to*, as in the above example (108a), but is never doubled by a full phrase. Northern Italian dialects also (trivially) exemplify this: A subject strong pronoun occurs with a clitic as a doubler (cf. *Ela la canta* 'she she sings').³³

3.2.3. In all cases above, a cooccurrence of clitics leads to the formation of a clitic cluster with characteristic morpho-phonemic processes applying. In Italian, for instance, the vowel /i/ of a clitic is obligatorily lowered to [e] inside a clitic cluster: *mì diede un libro* -> *me lo diede* 'to.me he.gave a book', 'to.me it he.gave'. On the other hand, no such process is attested in a combination of weak pronouns.

3.2.4. The cooccurrence of several pronouns leads to a sharper contrast with one combination: An accusative first or second person clitic can never cooccur with a dative third person clitic. The sharp ungrammaticality of such examples (***Il me lui présente* 'he me to.him introduces') is constant across Romance and Slavic languages, but also in many different language groups (cf. Laenzlinger (1993), Bonet (1994)). No ungrammaticality obtains when one of the two pronouns is a deficient weak pronoun, thus the following minimal pairs (both for proclitic and enclitic pronouns):

- (115) a. ** Gianni **mi gli** ha presentato / ... di presentarmi**gli**.
 b. ✓ Gianni **mi** ha presentato **loro** / ... di presentarmi **loro**.
 c. ✓ Gianni **mi** ha presentato **a loro** / ... di presentarmi **a loro**.
 Gianni me to.him has introduced to them / ... to introduce me to.him / to them

3.2.5. The fact that the two deficient series of pronouns individuated by distributional properties consistently pattern asymmetrically (together with the systematic regularity of the tripartitions), is a clear evidence for the presence of an underlying pattern. The fact that clitics are uniformly best analysed as heads, while weak pronouns are uniformly best analysed as maximal projections, provide a simple distinction between the two series. Further, all other morpho-syntactic asymmetries above may be restated in X-bar terms: A doubled pronoun cannot be a maximal projection, only heads form clusters, and only heads are subject to the accusative-dative constraint, whatever the source of the latter is.

3.2.6. From now on, the terms *clitic* and *weak* pronouns will be used in this *strict technical sense*: Clitic elements are deficient (underlying) phrases which are heads at surface structure, and weak elements are deficient (underlying) phrases occurring as maximal projections at surface structure:

- (117) strong pronouns: strong, phrases (*jemu* (Slovak), *lui* (Italian), ...)
 weak pronouns: deficient, phrases (*ono* (Slovak), *es* (Olang-Tirolese), ...)
 clitic pronouns: deficient, heads (*mu* (Slovak), *lo* (Italian), ...)

³³ The doubling patterns could be taken as evidence for the fact that deficient subject pronouns of declarative sentences are clitics and not weak in French. Doubling of the type *Jean il mange* 'John he eats', if a consistent analysis of doubling was put forward, would indicate that *il* is a clitic in that case, contradicting the claim in the text. Without paradox, it seems to us that this is a correct conclusion: The register / dialect of French which admits doubling with flat intonation also requires repetition in coordination, while the register / dialect which allows shared deficient pronouns in coordinations does not allow doubling with flat intonation. Cf. Cardinaletti & Starke (1994b) for more discussion.

As a historical note, let us note that although the terminology of "clitic" and "weak" is taken from the tradition, the present syntactic tripartition of pronouns has, to our knowledge, never been proposed before. Earlier uses of the term *weak* are either synonymous to "clitic", or mean "Germanic counterparts to Romance clitics". Two proposals are closer to the present one, but both are suggested for and applicable to a constrained set of phenomena, neither proposes a syntactic tripartition and neither presents a global system covering all types of pronouns (cf. §4-§7): the PF-clitic system of Kayne (1983), with two syntactic classes, clitic and strong, and a PF-class, a notion by definition limited to those (non-clitic) deficient pronouns which must be adjacent to their predicate (such as French *il* but not English (subject) *it*); and the N*-system of Holmberg (1991), with two classes, strong and N* pronouns, the latter being an entity ambiguous between heads and maximal projections (cf. Cardinaletti & Starke (1995:Section 4) for more discussion).³⁴

3.2.7. Since both deficient series must occur at S-structure in some functional projection of their predicate, it follows from the X-bar distinction between them that clitics occur in a functional head, while deficient elements occur in some specFP.

It has been abundantly illustrated that subject deficient elements such as Italian *egli* 'he', French *il* 'he' are restricted to a preverbal subject position: They can only occur in specAgrsP at surface structure. A similar situation obtains for objects. The *loro* paradigm (106a) transparently shows that weak datives obligatorily occur in a high position, above the standard position of their strong counterpart.

That weak pronouns are limited to a derived position also transparently holds of weak direct objects. This is clear for instance in the English particle verb construction (Johnson (1991)).³⁵

- (119) a. He took {it} in {*it} because of the rain.
 b. He took {John} in {John} because of the rain.

Anticipating on non-pronominal weak elements, the same is visible in French with weak quantifiers thanks to the absence of past participle movement (Cinque (1994)), and in Italian with weak adverb placement with respect to the weak demonstrative *ciò* (cf. also §9):³⁶

³⁴ Facts which do not fit neatly into the traditional bipartition have in fact often been noted, and "local patching" have sometimes been proposed. Three additional cases are: Cardinaletti (1991), whose discussion of the properties of the aprepositional dative *loro* prefigured much of the present work without formally distinguishing the three classes; Halpern & Fontana (1992), with their notion of X-max clitics, which are also maximal projections, but which cover essentially those deficient pronouns which appear towards the front of the clause, i.e. roughly Germanic and Slavic deficient pronouns, some of which are clitic, and some of which weak, in our terms; and Koopman (1993), discussing the complex Welsh pronominal system. Again, in all these cases the proposed system is similar in spirit to the present proposal but widely different both empirically and theoretically.

³⁵ The formal identity between the particle construction paradigm (*Mary took {him} in {*him/HIM}*) and Romance paradigms such as *Marie la voit {*elle/ELLE}* or *Maria {la} vede {*lei/LEI}* 'Mary sees her' (i.e., the strong pronoun is impossible unless the deficient is ruled out by non-prominent referent focalisation) now shows the path to the solution of the puzzle observed in fn. 9: The amount of focus needed in French is much superior to that needed in Italian. Logically, this could be either because French transparently shows the effect of the choice preference, and an independent factor softens the effect in Italian, or that Italian is transparent w.r.t. the choice effect and an independent factor worsens French. Since the amount of stress needed in English to allow a post-particle *him* seems to pattern with the Italian case, and not with French, the second path is more plausible (all the more so given that a similar conclusion holds of German with post-adverbial pronouns, ... *daß Hans {ihn} gestern {*ihn/IHN} gesehen hat* 'that John him yesterday seen has').

The additional effect observed in French may be due to the fact that French uses cleft sentences as the unmarked contrast-marking construction, whereas Italian focussed objects may freely stay postverbally.

³⁶ *Ha studiato la storia poco* is acceptable if the adverb is stressed (or coordinated or c-modified, etc.), cf. §9.

- (121) a. Il a {tout} vu *{tout}.
 b. Il a *{l'ours} vu {l'ours}.
 he has all / the bear seen all / the bear
- (123) a. Ha studiato {ciò} poco *{ciò}.
 b. Ha studiato *{la storia} poco {la storia}.
 he.has studied this / the history little

Since none of the weak elements interferes with A'-chains, and all surface in the position where an AgrP would be postulated, subject and object weak elements may be subsumed under one general condition:³⁷

- (125) Weak pronouns must occur, *at S-structure*, in a case-assigning specAgrnP

or, if case is limited to specifier-head configurations, more simply:

- (127) Weak pronouns must occur in a case-position *at S-structure*.

Rizzi (1986a), as reformulated by Chomsky (1993), arrives at the same conclusion (modulo the notion of weak elements) on the basis of one weak pronoun: the null personal pronoun *pro*, cf. §3.4.

3.2.8. An additional prosodic asymmetry seems to separate the two types of deficient pronouns: While both types of pronouns may receive phrasal and contrastive accent (cf. §2.4.1. and §2.8.5. above), weak pronouns but not clitic pronouns may have (lexical) word-stress. All of V2-initial *es*, dative *loro*, subject *ono*, subject *egli*, etc. are not obligatorily destressed morphemes, but may bear usual word-accent. On the other hand, the clitic morphemes *s*, *gli*, *mu*, *la*, *il*, etc. are consistently destressed. In somewhat metaphorical terms: While both series can acquire accentuation, only one of the two has it from the start.

Unfortunately, the category of weak pronouns having been little studied, if at all, no extensive investigation is available on their prosodic properties. As a consequence, two types of interpretations are *a priori* plausible, the former focalizing on the lexical form of the pronoun, the latter on class-membership:

- (i) the clitic / weak contrast is irrelevant, what matters is the monosyllabic / bisyllabic distinction. All monosyllabic deficient pronouns lack word-stress and restructure prosodically, while neither of those properties holds of bisyllabic deficient pronouns. Under this interpretation, the only relevant prosodic asymmetry is that between deficient and non-deficient pronouns: Deficient, but not strong monosyllabic pronouns lack word-stress and restructure.
- (ii) the monosyllabic / bisyllabic distinction is irrelevant, what matters is the clitic / weak contrast. All weak pronouns can bear word-stress, while no clitic-pronoun does so, i.e., clitic pronouns always restructure, while weak pronouns optionally do so.

What is at stake is the restructuring capacity of bisyllabic weak pronouns, such as Italian *loro*, *egli*, Slovak *ono*, on the one hand, and word-stress properties of monosyllabic weak pronouns, such as German *es*, French *il*, or English *him*, on the other.

In both cases, available indications point towards the second interpretation. Nespor & Vogel (1986) note that the bisyllabic *loro* may optionally restructure with a preceding verb, invalidating the claim that only monosyllabic elements restructure. German V2-initial monosyllabic deficient subject *es* may occur both as a reduced 's and as a full prosodic word with its own accent, invalidating the claim that all monosyllabic deficient pronouns prosodically restructure. This is most clearly indicated by the distribution of the German glottal stop which is only found before the initial vowel of a prosodic word. The glottal stop may be found either only in front of the sentence-initial deficient pronoun *es*, or both before the sentence-initial *es* and before the verb. In the latter case, *es* forms a prosodic word and thus bears its own word-accent:³⁸

³⁷ By specAgrnP, we leave open the question of specAgr_{acc}P vs. specAgr_{dat}P. Higher Agr projections should be assumed for languages such as German and West Flemish, displaying deficient object pronouns in positions higher than negation (cf. Haegeman (1994)).

³⁸ French subject pronouns are apparently the strongest example of weak elements which are systematically stressless (but cf. fn. 33). However, in a preliminary phonetic experiment, one author (Starke) found a harmonic break between a weak subject pronoun and the verb, which is

- (129) a. [↗]Es ist schön.
 b. [↗]Es [↗]ist schön.
 it is nice

Both these facts indicate the relevance of the clitic / weak distinction for prosody (as opposed to the monosyllabic / bisyllabic opposition). The most plausible format for the generalisation concerning the prosodic asymmetries thus seems to be: ³⁹

- (131) a. deficient, but not strong pronouns may restructure (liaison, reduction, prosodic domains), §2.6
 b. weak, but not clitic pronouns bear lexical word-stress.

3.3. Relative properties: Morphology and choice

All properties separating deficient from strong pronouns uniformly hold of both clitic and weak pronouns. This is trivial for monadic properties, (82) (with the above proviso about prosody), but more interesting for relational properties, (80): The two relations which hold in <deficient; strong> pairs extend to <clitic; weak> pairs, transparently showing the ranking between the classes.

3.3.1. The morphological asymmetries between the three classes of pronouns give an explicit illustration of the relation between the three series, a representative sample of which is:

usually taken to indicate a prosodic boundary (S. Vater (p.c.)). To the extent that this is a genuine phenomenon, the full generality of the above prosodic observation is supported.

³⁹ A much more fine-grained analysis would be needed: The three discussed properties of restructuring sometimes seem to be dissociated, while restructuring is sometimes obligatory, with no clear correlation with classes, number of syllables, etc.

(133)		<i>clitic</i>		<i>weak</i>		<i>strong</i>
a.	s	<	es			(Olang Tirolese)
	il	=	il			(French)
b.	ho			<	jeho	(Slovak)
c.			loro	<	a loro	(Italian)
			il	<	lui	(French)
			sie	=	sie	(German)

So that:

$$(135) \quad \text{clitic} \leq \text{weak} \leq \text{strong}$$

The two deficient series are not simply opposed to the strong one: Weak elements enjoy an intermediate status.

3.3.2. Whenever the two forms are in principle possible, a deficient form takes precedence over a strong form, §2.3. This is true of both weak pronouns and clitics: Descriptively, a strong form is impossible if a deficient form is at disposal. As soon as the deficient form is impossible (for independent reasons, here ostension introducing a non-prominent discourse referent and c-modification), the strong form is possible again:

- (137) $\text{clitic} < \text{strong}$
- | | | | |
|------|----|---------------|---------------------------------|
| a. ✓ | Je | le | vois. |
| b. * | Je | | vois lui . |
| c. * | Je | le | vois. |
| d. ✓ | Je | | vois le lui . |
| | I | him | see him |
- (139) $\text{weak} < \text{strong}$
- | | | |
|------|------------------|----------|
| a. ✓ | Il | me voit. |
| b. * | Lui | me voit. |
| c. * | Il aussi | me voit. |
| d. ✓ | Lui aussi | me voit. |
| | he also | me sees |

Whenever a clitic and a weak form compete, as in Olang-Tirolese, it is the clitic that takes precedence, (142a,b). It is only when the clitic is a priori disqualified, as in (142c,d), that the weak form may surface:

- (141) $\text{clitic} < \text{weak}$
- | | | | | |
|------|-----------|-----------|-----------|-------|
| a. ✓ | ... daß | z | toire | isch. |
| b. * | ... daß | es | toire | isch. |
| | ... that | it | expensive | is |
| c. * | S | isch | toire. | |
| d. ✓ | Es | isch | toire. | |
| | it | is | expensive | |

The complete precedence pattern thus mirrors the morphological pattern: Weak pronouns are again intermediate between clitic and strong forms:

$$(143) \quad \text{clitic} < \text{weak} < \text{strong}$$

3.4. Null pronominals

To the extent that *pro* is pronominal, it is a deficient pronoun.⁴⁰

3.4.1. It has the semantics of a deficient pronoun, not that of a full (strong) pronoun. It can be expletive, (146a), impersonal, (146b), can have non-human referents, (146c), but cannot occur with ostension to denote a non-prominent discourse referent, (146d) (while nothing rules this out in principle):

- (145) a. ✓ *pro* piove molto qui. (*lui (strong))
 it.rains a lot here
 b. ✓ *pro* mi hanno venduto un libro danneggiato. (*loro (strong))
 me they.have sold a book rotten
 c. ✓ *pro* è molto costoso. (*lui (strong, non-human))
 it.is very expensive
 d. * *pro* è veramente bello. (✓lui (strong))
 it.is very nice

3.4.2. Its distribution is that of a deficient pronoun, not that of a full argument: Rizzi (1986a), as rephrased by Chomsky (1993), concludes that *pro* can only occur in a case-marked specAgrP, exactly mirroring the distribution of weak elements (§3.2.7). This conclusion is thus supported by two distinct studies, based on two independent sets of facts (on the other hand, it also entails that the restrictions on *pro* are due to its being weak, and not to its being null).

3.4.3. Given the choice between a strong pronoun and a *pro* counterpart, *pro* is always chosen:

- (147) a. Gianni ha telefonato quando *pro* è arrivato a casa.
 b. * Gianni ha telefonato quando **lui** è arrivato a casa.
 John has called when he is arrived at home

This is sometimes referred to as the "Avoid Pronoun Principle" (cf. Chomsky 1981), which is a special case of a much broader preference for deficient elements over their strong counterparts, §7.

3.5. Generalisations⁴¹

(149)	morphology	choice	distribution		interpretation	prosody		X-bar
	+reduced		in FP at SS	*coord, ...	no range	reduction rules	no word-stress	X°
clitic	1	1	+	+	+	+	+	+
weak	2	2	+	+	+	+	—	—
strong	3	3	—	—	—	—	—	—

⁴⁰ Modern Greek seems to be an example of a language in which the tripartition includes *pro*. Joseph (1993) writes "Greek provides an example of a language with a three-way distinction in pronominal realizations", referring to the strong (nominative) *aftos*, the deficient *tos*, and *pro*. From preliminary tests, *tos* qualifies as a clitic, thus reproducing the clitic (*tos*), weak (*pro*), strong (*aftos*) paradigm.

⁴¹ Descriptively, there is a progression from most deficient to totally free element: affix -> clitic -> weak -> strong. In this work, we are concerned in solidly grounding and finding the primitive of the distinction (i) between strong and non-strong (deficient) elements, and to distinguish clitic deficient element from weak deficient elements. The distinction affix / non-affix is irrelevant to these points, and the fact that many properties that do distinguish deficient / strong elements (such as coordination, morphological reduction, etc.) would put affixes together with deficient elements is therefore irrelevant to the extent that there exist *some* clitic elements (in the technical sense), which are uncontroversially not affixes (which we take to be the case).

PART II. ... AND HOW TO ACCOUNT FOR IT

PRELIMINARY: The *a priori* desired result

Given (150), the initial question in §1.1.6:

- What is γ , the underlying (universal) trigger of (2) which provokes a wide array of distributional, semantic, prosodic and morphological asymmetries between two forms of one and the same pronoun?

can be meaningfully addressed. Since deficient elements divide into two coherent classes, two triggers are needed: One which causes weak deficiency, γ' (weak pronouns), one which causes severe deficiency, γ'' (clitic pronouns).⁴²

Logically, these two triggers could be unrelated, or widely distinct. But facts indicate the contrary. Deficient characteristics (DC) of weak pronouns are a *proper subset* of the deficient characteristics of clitic pronouns (i.e. all characteristics that differentiate weak from strong elements are also shared by clitics):

$$(151) \quad \text{DC(strong)} \subset \text{DC(weak)} \subset \text{DC(clitic)} (\text{trivially } \text{DC(strong)} = \emptyset)$$

What is needed in order to *explain* this state of affairs is that the trigger which causes mild deficiency, γ' , be *shared* by clitic and weak pronouns. The second trigger, γ'' , is an exclusive property of clitics and adds itself to γ' to cause severe deficiency. Two unrelated triggers could only accidentally produce the pattern (152).

Pattern (152) repeats itself with the two relational properties linking the three classes:

$$(153) \quad \begin{array}{ll} \text{a.} & \text{clitic} \leq \text{weak} \leq \text{strong} & (\text{morphology}) \\ \text{b.} & \text{clitic} < \text{weak} < \text{strong} & (\text{choice}) \end{array}$$

Again, their general format ($x < y < z$) is explained only if x contains the same trigger as y , plus its own additional trigger. Two distinct triggers leave as a mystery both the nature of this format and its recurrence across the three generalisations: (152), (154a), (154b).

The generalisations (154a-b) require that both γ' and γ'' trigger the same property. By (154a) both γ' and γ'' trigger the property of being morphologically reduced with respect to an element which does not possess the trigger. By (154b) both γ' and γ'' trigger the property of being preferred over an element which does not possess the trigger. The similarity of effects of γ' and γ'' would be most elegantly explained if the latter are two formally identical triggers.

A priori then, the format of the solution to the puzzle of deficiency should be (i) clitic pronouns are deficient in two respects, γ' and γ'' , while weak pronouns are only deficient in one of these two respects, γ' , (ii) the two aspects of deficiency, γ' and γ'' , are two (formally identical) instances of a more general underlying phenomenon, γ , the unique cause of (150) and the scope of this paper.

⁴² Two points made in the introduction also come out clearly from (150): (i) a trigger which explains only a subset of the asymmetries is inadequate, (ii) given both the range of properties involved (distributional, morphological, semantic and prosodic) and the fact that none of these properties systematically correlates with the class-distinction, it is unlikely that the primitive of the explanation be a purely prosodic property (which would make it impossible to address semantic properties), or a purely semantic property (which could not explain prosodic asymmetries). Syntax is the only component plausibly linked to all relevant types of asymmetries, and thus capable of addressing all facts.

4. DERIVATION: MORPHOLOGY

4.1. The most direct manifestations of γ are the two relational properties: Contrary to all other characteristics, they are uniformly valid across all three abstract classes, across widely different languages, and, to anticipate, across grammatical categories (cf. §9). Further, given the hypothesis that inflectional morphology is relevant to syntax (a conception recently popularised by the work of Baker (1988) and Pollock (1989)), the morphological asymmetry is by far the most telling of the two.

4.2. We contend in fact that the simple observation that some deficient pronouns are morphologically a proper subset of the corresponding strong pronouns (and that the reverse never obtains), is all that is needed to explain everything concerning the three classes of pronouns, and this without changing anything to grammatical theory.

4.3. How are the following morphological relations between pronouns of distinct classes formally represented?

(155)	strong:	je- ho	je- mu	a loro
	deficient:	ho	mu	loro
		him, Slovak	to.him, Slovak	to them, Italian

Minimally, the deficient element must be taken to contain less morphemes than its strong counterpart. Under the hypothesis that morphemes are heads of discrete syntactic projections, it follows that the number of syntactic heads *realised* by the strong form is bigger than that realised by the deficient element. The Italian pair, in which it is not controversial that the dummy preposition is syntactically represented, is particularly clear in that respect.

4.4. This simple, and unavoidable, conclusion provides the explanation of the systematic morphological reduction of deficient pronouns, (158a). A more deficient pronoun is morphologically lighter than stronger pronouns *because* it contains less (underlying) morphemes, (158a-b), and it contains less morphemes *because* it realises less syntactic heads (158b-c).

- (157) a. clitic \leq weak \leq strong
 b. morph(clitic) < morph(weak) < morph(strong)
 c. struct (clitic) < struct (weak) < struct (strong)

The existence of opaque morphology is the only reason that this relationship is not always visible at the surface, as it is in the preceding cases (cf. fn. 4). Unless similar morphological pairs are to receive distinct explanations, the conclusion reached on the basis of (156) must extend to pairs such as <lo ; lui> in Italian or <me ; moi> in French, and (158b) is literally entailed.

4.5. Why is it that “the more a pronoun is deficient, the less syntactic heads it *realises*”? It cannot be a simple matter of spelling out fewer heads, if the systematic nature of the asymmetry is to be explained. It must rather be that the syntactic representation of deficient pronouns contains less elements to be realised: The more a pronoun is deficient, the less features / projections it contains. The syntactic structure of deficient pronouns is itself deficient, (158c).⁴³

4.6. Generalising, this reasoning yields that weak pronouns realise less structure than their strong counterpart, and similarly, clitics are structurally impoverished w.r.t. their weak counterpart.

⁴³ This syntactic impoverishment may be due either to (a) some syntactic nodes of the reduced pronoun being (always) radically empty, or (b) the syntactic structure of the deficient pronoun containing less projections than that of the strong pronoun. Both implementations explain the syntactic asymmetry, and the choice between the two involves delicate questions about the nature of syntactic structure (must all projections always be projected?, what does it mean to be a radically empty projection?, etc.). As far as we can see, nothing below hinges upon the choice between the two implementations. The more radical version is however adopted in the text for simplicity of exposition: The more a pronoun is deficient, the less syntactic structure it has.

In other words, taken seriously, simple morphological observations virtually entail “that what makes a clitic pronoun be a clitic” is that its syntactic representation is impoverished w.r.t. that of weak and strong pronouns (and similarly for the weak vs. strong distinction).

4.7. The unique and purely abstract primitive, γ , underlying all asymmetries linked to deficiency, across lexical categories is identified:

- (159) *Structural Deficiency:*
 γ = lacking a set of functional heads.

Structural deficiency is (potentially) capable of deriving all relevant asymmetries: It is uncontroversial that variation in syntactic structure triggers variation in morphology, prosody, semantics and distribution.

Structural deficiency is also the right notion to explain the fact that the deficient properties of weak elements are a subset of those of clitic elements, since these properties are to be imputed to the set of heads which is lacking in both clitic and weak elements (cf. the desideratum of the above "preliminary"). Finally, structural deficiency straightforwardly explains the general format of the relation between the three classes ($x < y < z$), since each class literally *is* a (syntactic) subset of the other, with the general relation:

- (161) clitic = weak - γ' = strong - γ' - γ'

4.8. What follows, is a discussion of how γ triggers the three remaining aspects of deficiency: (i) what is the structure missing in all deficient elements and how does it trigger the set of properties distinguishing strong forms on the one hand from weak and clitic forms on the other, §5 ?, (ii) what is the structure missing in severely deficient elements and how does it trigger the set of properties distinguishing strong and weak forms from clitics, §6 ?, and (iii) how does syntactic reduction trigger the choice preference, §7 ?

5. DERIVATION: MILD DEFICIENCY

A large number of properties of the set γ' of syntactic heads lacking in both clitic and weak pronouns is already known, given the preceding reasoning and the discussion in §2-3:

- (163) a. in transparent morphology, γ' is overtly realised as the morpheme(s) missing on the weak form, but appearing on the strong form (i.e. $\gamma' = \text{Morph}(\text{strong}) - \text{Morph}(\text{weak})$, cf. (158), (162))
 b. the absence of γ' forces the pronoun to occur in a functional projection at S-structure
 c. the absence of γ' renders coordination and c-modification impossible
 d. the absence of γ' correlates with the absence of a range-specification in the pronoun
 e. the presence of γ' forces a [+human] interpretation
 f. the absence of γ' legitimates prosodic restructuring and phonological reduction rules.

5.1. The missing morpheme

These properties now unambiguously identify γ' , the surface morpheme which realises the syntactic structure present inside strong elements but missing in their deficient counterparts.

5.1.1. The vast majority of known <weak ; strong> pairs are homophonous: This is the case in English <him ; him>, German <sie ; sie>, French <elle ; elle>, etc. One pair with transparent morphology has however been discussed above: the Italian dative <loro ; a loro>. In this case, the above discussion entails (i) that the strong element *a loro* is literally constructed out of the weak pronoun *loro* plus the morpheme *a*, so that (ii) $\gamma' = a$:

- (165) a. Non regalerei mai **loro** tutto **loro*.
 b. Non regalerei mai **a loro* tutto **a loro**.
 not I.would.give never (to) them everything

This (surprising) conclusion is directly supported by two following sets of facts.

5.1.2. The "dummy marker" *a* has exactly the right distributional property (164c): Its presence / absence correlates with possibility of coordination and c-modification. The *loro* complement to *a* in

(170) has properties similar to that of the weak pronoun in (168). Only the whole projection, containing *a*, can be coordinated and modified; the same is true for new referents under contrastive stress:

- (167) a. * Ho parlato [loro e loro].
 b. * Ho parlato solo [loro].
 c. * Ho parlato [LORO], non [loro].
- (169) a. * Ho parlato **a** [loro e loro].
 b. * Ho parlato **a** solo [loro].
 c. * Ho parlato **a** [LORO], non [loro].
- (171) a. ✓ Ho parlato [**a** loro] e [**a** loro].
 b. ✓ Ho parlato solo [**a** loro].
 c. ✓ Ho parlato [**a** LORO], non [**a** loro].
 I have spoken to them and them / only to them / to THEM, not to them

This is not an idiosyncratic property of *loro* or of pronouns in general. It is always true that the complement of *a* behaves as a weak element: The same paradigm is reproduced with nominal complements:

- (173) a. * Ho parlato **a** [tuo fratello] e [quel sindaco].
 b. * Ho parlato **a** solo [tuo fratello].
 c. * Ho parlato **a** [TUO FRATELLO], non [quel sindaco].
- (175) a. ✓ Ho parlato [**a** tuo fratello] e [**a** quel sindaco].
 b. ✓ Ho parlato solo [**a** tuo fratello].
 c. ✓ Ho parlato [**a** TUO FRATELLO], non [**a** quel sindaco].
 I have spoken only to your brother and / not to that mayor)

The complement of dummy markers mirrors weak elements: It is a maximal projection which may not occur by itself in coordination (174a)-(176a), c-modification (174b)-(176b), and cannot introduce new referents (by contrastive stress) (174c)-(176c).

5.1.3. Second, dummy markers like *a* have exactly the right semantic property, (164e): Dummy markers such as the Spanish *a* and the Rumanian *pe* force a [+human] interpretation. This is replicated in Central and Southern Italian dialects, with the dummy marker *a* which appears on left-dislocated accusatives, (178), in exact parallel to the asymmetry found with dative *loro*, (180): ⁴⁴

- (177) a. ✓ **A** quella bambina piccola, la metto in primo banco.
a this small girl, her I.put in first row
 b. * **A** quella tavola rossa, la metto vicino alla finestra.
a that table red, her I.put near to.the window
- (179) a. ✓ Ho parlato **a** loro.
 I have spoken to them
 b. * Ho aggiunto i pezzi di ricambio **a** loro.
 I have added the spare parts to them

5.1.4. That dummy markers like *a* realise the missing piece of deficient pronouns is strikingly confirmed by Central and Southern Italian dialects in which the above morphological similarity is widely generalised: A dummy marker appears on all strong objects, whether nominal or pronominal, but on *no* deficient objects. In the dialect spoken in the town of Senigallia, for instance, the dummy marker is spelled-out as *ma* and may appear on both dative and accusative objects in the base position (examples from Sellani (1988)):

- (181) a. ✓ tutt l' ser arconta **ma**_{DAT} i fiulini (p. 9)
 all the evenings she.tells-tales *ma* the children

⁴⁴ Dummy markers also have the correct morphophonological properties: that of being light morphemes. Comparison of morphological pairs across languages shows the morphological difference between weak and strong elements to be systematically tenuous though present.

- b. ✓ e po' s' sent urlà **ma**_{ACC} i venditori (p. 39)
and then SI hears shout *ma* the venders
'and then one hears the venders shout'

The very same dummy marker appears on strong but is missing in deficient pronouns:

- (183) a. ✓ Ho vist **malu**.
 b. ✓ **L'** ho vist.
 him I.have seen *ma*-him

This is the clearest possible evidence to the effect that the presence / absence of the dummy marker is correlated with deficiency.⁴⁵

5.2. Missing structure

Granted that the dummy markers realise the piece of structure missing in both weak and clitic pronouns w.r.t. normal strong pronouns, what is this piece of structure?

5.2.1. Given all the above arguments, the missing structure must be some projection *inside* the nominal phrase, i.e. a functional projection associated with the noun (as first argued by Vergnaud (1974)):

- (i) since γ' is a (set of) functional projection *belonging to* a strong element but lacking in weak and clitic elements, it follows that γ' is a member of the “extended projection” of the strong element.⁴⁶
- (ii) in complex prepositions, such as *instead of*, dummy markers typically appear as the final element, and are syntactically independent of the first preposition. To capture the rigid ordering, constituency, etc., the only reasonable approach is to assume that the lexical prepositions are PPs taking a full nominal projection as complement, part of which is the dummy marker (Starke (1993a)).
- (iii) The correlation between the [+human] interpretation of the head noun and the presence of the dummy marker *a* in Spanish or *pe* in Rumanian can only be (naturally) implemented if these dummy markers are functional projections of the noun. It is a minimal assumption that the functional projections associated with the lexical head L° contain features of L° . If this is the case, nothing need be said except that accusative markers are specified for [+human] feature, and are thus compatible only with nouns with human referents. On the other hand, if the dummy markers were not functional heads associated with the noun, they would need to *select for* a [+human] complement, a type of grammatical selection never attested otherwise (trivial cases of θ -role assignment are irrelevant).

5.2.2. Since dummy markers like *a* always appear topmost (leftmost in the SVO languages discussed here) in nominal phrases, not only do they realise some functional projection of the noun, but they realise a high, or the highest, functional projection (where the “n” subscript on XP and YP indicates that they are functional projections of the noun):

- (185) *strong*: ... parlare [_{XP} a [_{YP} loro
 weak: ... parlare [_{YP} loro
 ... to.speak [to [them

5.2.3. In naming the high nominal functional head realised by dummy markers, we follow Starke (1993a) and call it “complementiser”, i.e. that which makes something become “complement of”. The original rationale for this is the extensive syntactic similarity between the dummy markers appearing in “complex prepositions” (e.g. *instead of*) and the complementiser appearing in “complex complementisers” (e.g. *avant que* ‘before that’). Several other reasons however point to the same direction:

- (i) The numerous analyses exploring the path known as the DP-hypothesis arrive on the one hand at the conclusion that the D-node contains two distinct sets of features: ϕ -features (Brame (1981), Abney (1987), Giusti (1993), etc.), and referential features (Vergnaud & Zubizarreta (1990), (1992), Longobardi (1991) a.o.). On the other hand, it is widely concluded that a serious study of adjective placement and of prenominal modifiers (quantifiers, demonstratives, etc.) requires a large number of functional heads associated with the nominal head (Ritter (1990), Cinque (1994a) a.o.).

⁴⁵ Since the <lo ; malu> pair is a <clitic ; strong> pair, it only shows that the dummy marker is correlated to some degree of deficiency, mild or severe. It is only in conjunction with the <loro ; a loro> pair that this argument bears precisely on mild deficiency.

⁴⁶ The notion of Extended Projection is from Grimshaw (1991). It is used here in a loose sense, to refer to the unit formed by the lexical head and all the associated functional projections dominating it, where by “associated with the lexical head” we mean “containing copies of features contained in the lexical head”.

Putting these two trends together with the conclusion that dummy markers realise a high nominal functional head naturally leads to a "split-DP hypothesis": The two sets of features attributed to D° are realised in two distinct functional projections, one containing ϕ -features, Y° , and spelled out as *such*, and the other containing referential features, X° , and spelled out as a dummy marker, if at all.

Now the parallelism between the topmost functional projections associated with the verb, and those associated with the noun, (188), is too striking not to be captured. In both cases, the highest realised layer contains a dummy morpheme (e.g. *that*, *of*), in both cases this dummy morpheme is (paradoxically) realising a head associated with abstract referential information of the whole phrase (i.e. range, one of the properties which distinguish deficient from strong elements), and further, in each case, the next morpheme down contains agreement-type information:

- (187) a. $[_{C_{VP}} \text{that} \quad \{\pm wh\} \quad [_{I_{VP}} \{\phi\} \quad [\dots [_{VP}]]]$
 b. $[_{X_{NP}} \text{of / a} \quad \{\pm range, \pm human\} \quad [_{Y_{NP}} \{\phi\} \quad [\dots [_{NP}]]]$

The most straightforward way to capture this parallelism is to assume that (188a,b) realise twice the same abstract structure: CP - IP - LexP. The traditional DP in (190a) is split into CP and IP in (190b): ⁴⁷

- (189) a.

DP	
D°	NP
<i>la</i>	<i>casa</i>
$\{\phi; ref\}$	

 b.

C _N P		
C_N°	I_{NP}	
	I_N°	NP
<i>a / di</i>	<i>la</i>	<i>casa</i>
$\{ref\}$	$\{\phi\}$	

(ii) *a* and *di*, the realisations of the "to be identified" high functional layer of nominal phrases, are standardly taken to realise the topmost functional projection of infinitival phrases in Romance, i.e. C° (Kayne (1984), Rizzi (1982)). The proposed analysis renders this a natural fact: These markers always realise C° .

5.2.4. A functional preposition such as *a* in the above examples is thus interpreted as a nominal complementiser, which closes off the extended projection of the noun, exactly like the complementizer closes off the extended projection of the verb. Any strong element will contain such a complementiser-like preposition (the identity of Z below is irrelevant here, cf. §6):

- (191) a.

strong	
C_{NP}	
C_N°	ZP
<i>a</i>	<i>loro / tuo fratello</i>
<i>to</i>	<i>them / your brother</i>

 b.

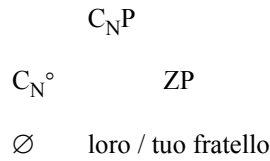
weak	
	ZP
	<i>loro_{DAT}</i>
	<i>to.them</i>

Strong elements appearing without a lexically realised preposition, for instance nominative and accusative DPs in Italian, are attributed the structure (194), which differs minimally from that of dative DPs, (192a): ⁴⁸

⁴⁷ Here and in subsequent representations, IP is used as a cover term for the (large) series of functional projections argued for in the above references. This proposal also implies that the definite article is not expression of the highest functional category, but of a lower functional head of the IP system. For the implications concerning clitics, often considered homophonous with determiners, cf. fn. 65.

That the syntactic representation of noun-phrases is similar, or identical, to that of verbal clauses is a hypothesis which has generated much recent work: Abney (1987), Szabolsci (1989), Siloni (1990), Cinque (1994a), among others.

(193) strong (e.g. nominative / accusative)



Logically, the absence of the CP layer in deficient elements must be the trigger of the remaining syntactic, semantic and prosodic asymmetries between deficient and strong elements: Since the absence of some XP (i.e. CP) is what triggers the morphological reduction and the morphological reduction is correlated to all other asymmetries, all other asymmetries must be derived from the absence of XP (i.e. CP) in order to capture the correlation.

5.3. Syntax

The simple answer to distributional asymmetries between deficient and strong elements is that they are caused by the absence of CP in deficient but not in strong pronouns: Because they lack CP, deficient pronouns must occur in some functional projection, cannot be coordinated, and cannot be modified:

- (164) b. the absence of γ' forces the pronoun to occur in a functional projection at S-structure
 c. the absence of γ' renders coordination and c-modification impossible

To go one step further, and explain why the absence of CP triggers these asymmetries, these asymmetries must be traced down either to the sheer absence of CP or to that of the content of C° .⁴⁹

5.3.1. As earlier, morphology is an indicator of the solution: The morphological realisation of C° , the dummy marker, is commonly designated as a "(mere) case-marker". The distribution of noun-phrases with dummy-markers in one language largely corresponds to the distribution of case-marked noun phrases in other languages.⁵⁰

We take this to indicate that the functional head which hosts the "reduplication" of the case feature of N° is C° (cf. fn. 46 for the assumed theory of functional heads). The distinction between, say, Italian and Slovak is that this case feature κ is morphologically realised (if at all) on C° in Italian but on N° in Slovak (glossing over other differences, such as the relative richness of the distinctions morphologically expressed by κ in the two languages).

Since deficient elements lack C° , they do not contain the (functional) case-feature. More precisely, *they cannot contain (functional) case-features*, the recipient of these features being absent.

Assuming, vaguely for the time being, that every noun phrase must be associated with a functional case-feature (as opposed to the one on N°), it follows that deficient, but not strong, elements must undergo some process allowing them to be associated with the functional case-feature. In this context, the natural (and usual) interpretation of "x is associated with α " is that either x contains α or x is in a local structural configuration with an element containing α . If, as is often assumed, Agr° is necessary for case-assignment, deficient elements now need to occur in a local structural configuration

⁴⁸ The appearance of a functional preposition on accusative arguments (as in Spanish and Rumanian, cf. §5.1.3) also supports the above hypothesis that dummy prepositions are always associated with nominal extended projections, covertly or overtly.

⁴⁹ This section is concerned only with mild deficiency, i.e. that what is common between weak and clitic pronouns, so (164b) requires some care. While it is evident that both weak and clitic pronouns must occur in some special derived position, the nature of this position seems substantially different in the two cases (XP vs. X°). Accordingly, only mild deficiency will be addressed here, i.e. the placement of weak pronouns in a derived XP position, reserving discussion of placement of clitics for the next section, concerned with the derivation of severe deficiency.

⁵⁰ As in §4 above, morphology is taken as an indicator of the underlying processes, not as the actual trigger of the surface asymmetries. This is not to be confused with so called morpho-syntactic accounts, which take morphology to be the "causal" factor.

with Agr^o. Furthermore, weak pronouns have no space to represent the case feature internally (the locus of case is absent) and thus cannot "acquire" the functional case feature. If a weak pronoun is further displaced, the displacement destroys the local configuration with Agr^o, and the deficient pronoun lacks case again. The local relation between the weak pronoun and Agr^o must be maintained as long as the pronoun needs case.⁵¹

5.3.2. Why do deficient pronouns need functional case? The central hypothesis of the present research is that the structural reduction observed in clitic and weak pronouns w.r.t. usual noun-phrases, is a *deficiency*, not a mere difference. As a deficiency, it must be compensated. A first tentative formulation of this is that (cf. §8 for discussion):

(195) Features missing in a deficient structure must be recoverable at all levels of representation.

For deficient pronouns to be properly interpreted, the lack of functional case must thus be compensated. This can only be achieved through the establishment of an appropriate structural relation with Agr^o. Given a model of grammar of the type,⁵²

(197) lexicon
 S-Structure

PF

LF

(196) entails that the relevant configuration must hold at S-structure (assuming there to be no displacement at PF).

Within a traditional x-bar model, "local configuration with X^o" may mean one of two things: spec-head agreement with X^o, or incorporation into X^o. Weak pronouns being XPs, they establish a local relation with Agr^o by appearing in specAgrP. It then follows from the above discussion that weak pronouns occur in a case specAgrP at S-structure, the generalisation to be derived.⁵³

5.3.3. The ban on modification of deficient elements (**I saw only it*) is to be traced down to the sheer absence of CP: These modifiers always modify a full clause, nominal or verbal, and never a subpart of the clause (*[only that it is so cold down there] bothers me* versus **[that only it is so cold down there] bothers me*). Their impossibility with deficient pronouns is a trivial consequence of structural deficiency.⁵⁴

⁵¹ Proviso: As implemented here, the case-account is immune to a (strong) objection: That there exist deficient elements for which case is irrelevant (such as weak adverbs, §9). In the present approach these elements lack the features corresponding to their highest functional projection, C^o, and these trigger deficiency. The nature of the feature in C^o such that it generalises over nouns, adverbs, etc. remains an open question, though.

⁵² It is irrelevant whether "S-Structure" is taken to denote an actual level of representation, Surface Structure, or a point in a derivation to which spell out applies, Spellout-Structure, and similarly for the lexicon as insertion point vs. deep structure (cf. Chomsky (1981) vs. Kroch (1989), Chomsky (1993) for recent discussions).

⁵³ A question might arise as to why case should be realised in C^o and assigned in specAgrP. This is however only a superficial difficulty. The two situations involve case features coming from different heads: Case realised in C^o comes from the superordinate head of which the CP is a complement, whereas case assigned in specAgrP comes from the lexical head dominated by AgrP.

⁵⁴ Whether c-modifiers are adjoined to CP, or they are in some higher position c-commanding the CP is not directly relevant. The second hypothesis is however favored by cases such as *seulement autour de la maison* versus **autour seulement de la maison* 'only around of the house'.

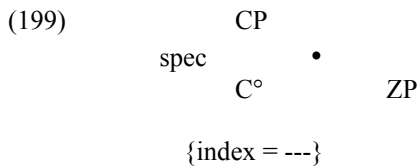
The exclusion of other modifiers, which occur neither with strong nor with deficient pronouns, (34a), must now be understood as a property of the L^o lexical head of pronouns, the features of which must project onto functional categories that do not admit specifiers.

5.3.4. The ban on coordination of deficient pronouns could be treated similarly, given a theory of coordination of the type proposed by Wilder (1994): Only CPs and DP_s (i.e., only CPs in our terms) can be coordinated.

In an approach to coordination in which any level of structure can be coordinated, one case is more delicate: that in which the conjunction (containing a deficient pronoun) occupies specAgrP (other cases are irrelevant: The pronoun is not in specAgrP and is thus ruled out exactly as dislocated or clefted pronouns). Nevertheless, the answer is straightforward enough: Being embedded inside a coordination, the deficient pronoun is not in an adequate local configuration with Agr^o, and is thus not associated with case, and, as a consequence, uninterpretable.

5.4. Semantics

5.4.1. The “referential” features usually attributed to the highest functional projection of noun phrases are referential indexes:



Deficient but not strong pronouns lack the highest functional projection, CP, and thus lack the referential index. Also:

- (164) d. the absence of γ' correlates with the absence of a range-specification in the pronoun
 e. the presence of γ' forces a [+human] interpretation

Again, the simplest solution seems adequate: Nothing need be assumed beyond (200) to explain (164d,e). If “referential index” is given its full meaning, that of associating a linguistic element with a non-linguistic entity, (164d) follows: Having an index implies having a range.⁵⁵

5.4.2. The exclusion of strong pronouns from expletive, impersonal, and non-referential dative uses is straightforward: Strong pronouns always have a CP and therefore contain an index and a range. Their having a range, is incompatible with occurrence in these constructions. On the other hand, because they have a referential index and a range, strong pronouns have no trouble denoting, even without being associated with an antecedent.⁵⁶

Deficient pronouns, on the other hand, have no CP, and thus no index. Lacking an index, nothing forces them to be referential: They may occur as expletives, impersonals, etc. But since they lack a referential index, they can be interpreted as referential only if they are associated with a (non-deficient) antecedent, through coreference. As a consequence, deficient pronouns can only be referential if they are “old information”, or, in other terms, “specific”. They are uninterpretable in and by themselves.⁵⁷

⁵⁵ If there were reasons to keep the notions of range and index unrelated, only elegance would suffer: Range would need to be postulated as an additional referential property of C^o and some slight complication would be needed in the wording of §5.4.7. Similar remarks apply for human reference below.

⁵⁶ We assume a theory of syntactic structure in which heads are nothing but the features “in” them and the presence of a node entails the presence of the features that constitute it (cf. fn. 43). A C^o without an index is not a possible entity.

⁵⁷ This entails that coreference may be as in [ib]. Not only can two elements corefer by *referring* independently of each other to one and the same entity, [ia], but they can also do so if only one of the two refers, and the second is associated with the first, [ib] (i.e. the referent of the second is a function of the referent of the first), cf. also Fiengo & May (1994) for similar views. From now on, the word “coreference” will be used only for [ib]:

- [i] a. Coreference as (special) reference b. Coreference as a function of the antecedent

5.4.3. The fact that dummy markers differ w.r.t. the [+human] characteristic, §5.1.3, could be taken to reflect their lexical specifications. Thus *a* in (202b) is lexically specified [+human] and only compatible with a [+human] noun (since the features of the noun must be identical to those in the functional heads). On the other hand, *of* in (202a) is lexically specified [\pm human] and thus occurs with both types of nouns:

- (201) a. [C_NP of [I_NP the ... [_{NP} ✓car / ✓postman]]] (English)
 {±human} ✓{-human} / ✓{+human}
 b. [C_NP a [I_NP (e)l ... [_{NP} *coche / ✓cartero]]] (Spanish,
 accusative) {+human} *{-human} / ✓{+human}

The requirement that strong pronouns refer to a [+human] entity could be exactly identical to (202b): The zero C° contained in strong pronouns, on a par with the Rumanian *pe*, the Spanish and Central-Southern Italian accusative *a*, is lexically specified [+human]:

- (203) [C_NP $\begin{matrix} \emptyset \\ \{+\text{human}\} \end{matrix}$ [I_NP strong ... [NP $\begin{matrix} \emptyset \\ * \{-\text{human}\} / \check{+}\text{human} \end{matrix}$]]] (universal?)

Finally, the fact that deficient pronouns are free to refer to non-human entities trivially follows from (204): Having no C°, they contain no [+human] specification and are thus in principle free to corefer with any (prominent) antecedent.⁵⁸

- (205) [I_{NP}^P weak ... [NP $\begin{matrix} \emptyset \\ \checkmark \{-\text{human}\} / \checkmark \{+\text{human}\} \end{matrix}$]]] (universal?)

5.4.4. A still simpler, and more elegant account may however be closer to truth. It need not be postulated that C° contains two distinct (sets of) features (index / range and human). A range in C° is nothing but a set of features directly linked to interpretation. Since $[\pm\text{human}]$ is a feature in C° directly relevant to interpretation, it is best seen as *part* of the features which constitute a range, and not as a separate entity.

Now with respect to range, strong pronouns are in a contradictory situation: Since they have a C°, the latter cannot be empty, and they must therefore contain some range-specification. On the other hand, they are associated with a dummy noun which does not provide any range-specification. To resolve the contradiction, a default range is inserted: [+human].

There is substantial evidence that [+human] is indeed a default feature in natural language. Cf. fn. 59, and, among other, apparent "deadjectival nouns", such as *gli alti* ('the high', Italian), *the rich*. These expressions can only have [+human] referents, while the corresponding adjectives are compatible with both human and non-human nouns (i.e. *the rich* may mean *the rich men* but not *the rich examples*). If such constructions include a null noun, the constraint on referents reduces to the fact that [+human] is a default range-feature.



Deficient elements (such as English *it*) are limited to the indirect path, [ib]: They never refer.

It is sometimes claimed that [ib] does not exist. If that were the case, it seems that we could not formulate the correlation between the necessary "specificity" and the "expletive-capacity" of deficient elements (cf. sections 2.4. and 2.5. above).

58 That the dummy nominal head is compatible with both values is attested by the zero noun of deficient pronouns and by overt realisations of the dummy noun, such as the English *one* (i.e. *the one I saw* may refer to both human and non-human entities). Nothing forces this though, cf. English, in which weak *it* is restricted to -human, and the weak version of *him/her* are restricted to +human (cf. also fn. 15).

As a result, only the accusative *a* in Spanish and Central-Southern Italian and *pe* in Rumanian need be lexically specified w.r.t. the $[\pm\text{human}]$ feature (i.e. $[\text{+human}]$ only), all other complementisers are simply unspecified for this trait, and their behaviour follows from independent principles.⁵⁹

5.4.5. An account in terms of default range is furthermore empirically superior to one in terms of lexical specification. The dummy marker appearing in the dative has distinct behaviour with nouns and pronouns: It is compatible with both human and non-human nouns, but only with $[\text{+human}]$ pronouns:

(207)a.✓	Ho tolto una nota	al	{manoscritto; bambino}.	
	I.have removed a footnote / mark	to.the	{manuscript ; pupil}	
b.	Ho tolto una nota	a	loro.	(= *manoscritti;
✓bambini)				
	I.have removed a mark	to	them	manuscripts ; pupils

A lexical account would need to stipulate two distinct dative dummy markers, with no explanation of why one specified $[\pm\text{human}]$ occurs with nouns and not pronouns.

On the other hand, the facts follow straightforwardly if no lexical specification is involved in dative *a* (or English *of*): These markers are simply underspecified for the human feature, and take it from the head noun, (208a). With pronouns, the head noun does not provide any range-specification, and the default range is inserted in C° , $[\text{+human}]$, (208b).

5.4.6. All the facts linked to the lack of range of deficient pronouns (“specificity”, expletives, impersonals and non-referential datives), as well as the animacy asymmetry may thus reduce to the single fact that the highest functional head associated with nouns contains a referential index, (200).

Whatever the fate of such a strong reduction, it is an empirical fact that this projection is linked to humanness, and it is barely controversial that it encodes referential features such as range. The link between the lack of CP and the wide number of apparently disparate surface semantic asymmetries, regarding contrastive stress (i.e. prominent discourse referent), ostension (i.e. prominent discourse referent), expletives, impersonals, non-referential datives, and specificity (i.e. prominent discourse referent), is thus established without special assumptions, through the notion of index (and range) in C° .

5.4.7. Putting the account of syntactic displacement (cf. §5.3.1-2) and semantic “non-referentiality” together now causes an unwelcome clash (although each is coherent in isolation). C° now contains two types of features: index (which entails range), and functional case. But the lack of index provokes different effects from the lack of case: Case must be recovered (thus provoking displacement), while index may stay absent altogether (as in the case of e.g. expletives).

But this problem stems from the redundant assumption that C° contains *both* case and index. All and only strong elements have an index (cf. §5.4.2), and it is also true that all and only strong elements have a functional case feature (§5.3.1). This redundancy vanishes if index is not a feature *besides* K in C° , but rather *index is the interpretation of K*.

This now solves the apparent contradiction: It is still the case that all and only strong elements have range (since all and only strong element have an index, in turn a consequence of the fact that all and only strong elements have a functional case feature), thus deriving all the semantic asymmetries. Deficient element can, but are not forced to, corefer with an antecedent (cf. fn. 57), thereby seemingly

⁵⁹ Impersonals are particularly interesting: Their interpretation is always arbitrary, i.e. associated with a default set of features, cross-linguistically including $[\text{+human}]$, a range in the present assumptions. The difference between arbitrary and expletive subjects, one having both range and θ -role and the other neither, suggests a simple account of arbitrary reading: In the interpretive component, bearing a θ -role necessarily implies having a range. If this is the case, then deficient pronouns have three possibilities: (i) deficient pronouns may be θ -less and rangeless (expletives, discourse particles (non-referential datives)), (ii) deficient pronouns may bear a θ -role and acquire range through coreference, cf. fn. 57 above, (iii) deficient pronouns may have a θ -role but no range in syntax, in which case a default range is inserted at the (post-syntactic) semantic interface: $[\text{+human}]$.

In other words, if having an index entails having a range, not having an index does not entail not having a range.

inheriting index and range. It now follows that all deficient elements must recover case, while not all deficient element inherit index / range.

In short, both the obligatory (overt) displacement of deficient element and the whole range of semantic asymmetries follows from the presence / absence of one single feature of C° : functional case.

60

5.5. Prosody

Although not much is known about the positive interactions between prosody and syntax, it is a standard assumption that prosody is sensitive to “major syntactic constituents” and that CP is such a constituent:

- (164) f. the absence of γ' legitimates prosodic restructuring and phonological reduction rules.

Tentatively, it may be assumed that in the absence of CP, a deficient pronoun does not qualify as a “major constituent”. It does not constitute an independent (above word-level) prosodic domain, and it is subject to phonological rules / processes characteristic of non-major categories, such as reduction rules or liaison. None of this is true of strong pronouns, which do constitute a major constituent, CP.

5.6. Summary

The general morphological asymmetry between deficient and full pronouns, together with the assumption that morphemes correspond to syntactic heads, leads to the conclusion that deficient pronouns correspond to less syntactic structure than full pronouns, a conclusion evident in transparent morphology (where the deficient form is a proper subset of the strong form).

From this it follows that “the missing piece” can be identified by a systematic morphological comparison between strong pronouns and (mildly) deficient pronouns, comparison which points to dummy prepositional markers. In turn, this entails that such markers are a functional projection of the noun, a conclusion supported by several independent studies. The similarity between this highest functional projection of the noun, and that found in the verb, is then so obvious that they are best viewed as two instances of one abstract category, here called complementiser. Finally, this topmost functional category is standardly taken to contain referential features (i.e. the referential index), while the dummy morphemes are typically associated with case, due to extensive distributional similarities. From these two features, the integrality of the asymmetries between deficient and full forms follows:

- (209)a. Because strong elements have a CP but deficient elements lack it:
- deficient elements are morphologically “lighter” (i.e. have less heads to realise)
 - deficient elements cannot be modified by modifiers of CP (c-modifiers)
 - deficient elements are not “major constituents”, and are thus subject to reduction rules, etc.
- b. Because strong elements have a functional case-feature but deficient elements lack it:
- deficient elements are necessarily in a case-assigning specAgrP at S-structure (to recover case).

⁶⁰ Cf. Bittner & Hale (1994) for a recent discussion of KP, independently arriving at the same structural conclusion: Noun phrases have a topmost functional projection which contains case (but not phi-features). In a different structural proposal, Giusti (1993) also argues against referential features in the topmost nominal projection and substitutes them by case information.

- c. Because strong, but not deficient, elements have an index (from their functional case feature):
- strong elements cannot be expletive, impersonal, non-referential dative
 - deficient elements cannot refer, they must associate to an antecedent prominent in the discourse (i.e. discourse-internal coreference: “specificity”, “old information”, etc., but also impossibility in most contrastive contexts, or with ostension)
 - strong elements with dummy lexical heads (strong pronouns) are assigned a default range [+human].

6. DERIVATION: SEVERE DEFICIENCY

The properties of γ'' , missing in clitics but present in both weak and strong pronouns, are:

- (211)a. in transparent morphology, γ'' is overtly realised as the morpheme missing on clitics but realised on both weak and strong pronouns (i.e. $\gamma'' = \text{Morph(weak)} - \text{Morph(clitic)}$)
- b. lack of γ'' causes X° -chain formation
- c. lack of γ'' entails absence of word-stress.

6.1. The missing morpheme

6.1.1. The single transparent <clitic; weak> minimal pair illustrated above, the <*s*; *es*> pair of Olang-Tirolese is not very informative. The Slovak <*ho*; *je-ho*> and <*mu*; *je-mu*> pairs discussed in §4.3 however provide valuable clues. First, the reduction is clearly not phonological, and second, the *je*-morpheme missing on the clitic is not plausibly assimilated to a dummy case-marker. As a consequence, the *je*-morpheme is not the realisation of γ' (C°) but rather of γ'' .

6.1.2. A similar reasoning applies to a number of other cases, either closely related to Slovak, as in the Serbo-Croatian pair <*ga*; *nje-ga*> 'him', or more distant, the Spanish <*los*; *el-los*> 'them', etc. (and maybe the Greek <*tos*; *af-tos*> 'he', Joseph (1993)). To a certain extent, German provides the same type of clue: The distinction between a weak form such as *ih-n* 'him' (ambiguous with the strong form) and the corresponding clitic form *n*, found in dialects (cf. Abraham (1991)), results from the loss of a dummy morpheme *ih*-.

6.1.3. In each case what disappears is a semantically empty “dummy” morpheme which has no other apparent role than that of rendering an impoverished form stronger. To encode this into the terminology, we will refer to this dummy as a “syntactic support”.⁶¹

6.2. The missing structure

6.2.1. The support morpheme attested in Slavic languages has the curious property of appearing as a support morpheme also outside of the realm of pronouns. The morpheme *je*- of Slovak pairs <*ho*; *je-ho*> and <*mu*; *je-mu*> also distinguishes, in one case, the clitic auxiliary from the strong copula: Whereas the third person clitic is a null morpheme, the strong third person copula is realised as *je* (Toman (1981) discusses the difference between these verbal forms for quasi-identical Czech data).

This parallelism between nominal and verbal contexts is strongly illustrated in Serbo-Croatian: On a par with nominal pairs <*ga*; *nje-ga*> or <*mu*; *nje-mu*>, verbal pairs are systematically distinguished by a support morpheme (Browne (1974)):

⁶¹ As noted by D. Ricca (p.c.), an explanation in terms of phonological reduction is not very plausible given the fact that the progressive phonological reduction of diacronic change systematically involve truncation of the ending of words, not of the initial part, while exactly the opposite holds of pairs of pronouns: It is systematically the initial phonemes / morpheme which is deleted (while in many cases, deficient pronouns still historically derive from full forms).

This strongly suggests that the diacronic process involved with deficient / strong pairs is not an instance of the general reduction process, but rather of the working of structural deficiency, maybe via the impetus of the choice principle (§2.3 , §7).

(213)	<i>clitic</i>	<i>strong</i>		<i>clitic</i>	<i>strong</i>	
	sam	je-sam	I.am	smo	je-smo	we.are
	si	je-si	you.are	ste	je-ste	you.are
	je	je-st	he.is	su	je-su	they.are

6.2.2. Given the parallelism between the support in the verbal domain and in the nominal domain, and the hypothesis that nominal CPs parallel verbal CPs, conclusions from the study of one system may carry over to the other. This permits an understanding of the mysterious nominal support on the basis of its better studied verbal counterpart.

In Serbo-Croatian, the verbal support *je-* is part of a tripartite system of support prefixes: A reduced form such as *sam* 'I.am' has as strong counterparts both *jesam*, in which *je-* is either emphatic or a simple dummy marker, and *nisam*, in which the support morpheme is interpreted as negative. The complete paradigm is illustrated in the following examples which show both the opposition between reduced and full forms (\pm string-initial) and the interpretive possibilities of the full forms:

- (215)a. * Sam ga pio. ("clitic")
 b. ✓ Je-sam ga pio. (emphatic, dummy)
 c. ✓ Ni-sam ga pio. (negative)
 yes / no-I.am it drunk
 'I have(n't) drunk it'

6.2.3. Exactly the same system is found in Basque: The bare form of the auxiliary is clitic-like (in the same sense as in Serbo-Croatian), and the complex forms are non-clitic entering the same tripartite semantic system: ⁶²

- (217)a. * Da etorri. ("clitic")
 b. ✓ Ba-da etorri. (emphatic, dummy)
 c. ✓ Ez-da etorri. (negative)
 yes / no-he.has arrived
 'He has(n't) arrived'

6.2.4. The virtual identity of the Basque and Serbo-Croatian verbal support paradigms not only imposes a unified analysis in terms of deep properties of natural language (the two languages being largely unrelated), but also provides an analysis of the phenomenon. Laka (1990) argues at length that the Basque support prefixes correspond to a functional category between C° and I° , which she calls Σ° and which contains both polarity features (assertion / negation) and focus features.

6.2.5. Extending Laka's analysis not only to Serbo-Croatian but to all occurrences of support morphemes, the nominal support morpheme realises a nominal Σ° in a structure of the type: ⁶³

- (219) $C_L P$ $\Sigma_L P$ $I_L P$ LP (with L = any lexical category)

More generally, Σ° may be taken to be the locus of prosody-related features of L° . ⁶⁴

⁶² The English *do* corresponds to *je-* in Serbo-Croatian and *ba-* in Basque in being a support morpheme (prefix) which is either dummy or emphatic. The necessity of a unified analysis of *ba-* and *do* is argued by Laka (1990).

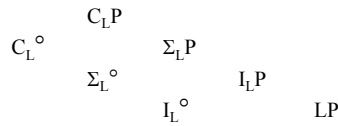
⁶³ What is here called ΣP has recently received widely different names: PolarityP, FocusP, Agr1P, AgrcP, WackP, etc., all denoting essentially the same entity.

⁶⁴ One feature may suffice: In the usual case, its negative value corresponds to negative interpretation, while its positive value is default (and non-realised) and corresponds to positive readings. Finally, a realised default value provokes emphatic (contrastive) reading. In Basque and Serbo-Croatian, the default value may be independently needed for pure grammatical constraints, and the emphatic reading is provoked where the support is realised without being independently forced.

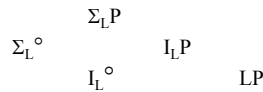
The fact that Σ° apparently contains both polarity features and focus features reflects a general (surprising) fact about language: Non-lexical accentuation is largely related to affirmation /

6.2.6. Such a phrase-structure provides a pristine model of Structural Deficiency: Just as weak elements lack the superior layer of strong elements, CP, clitic elements lack the superior layer of weak elements, ΣP . Weak elements are "peeled" strong elements, and clitics are "peeled" weak elements. The resulting structure of the three classes is: ⁶⁵

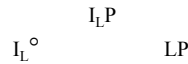
(221)a. Strong Pronouns



b. Weak Pronouns



c. Clitic Pronouns

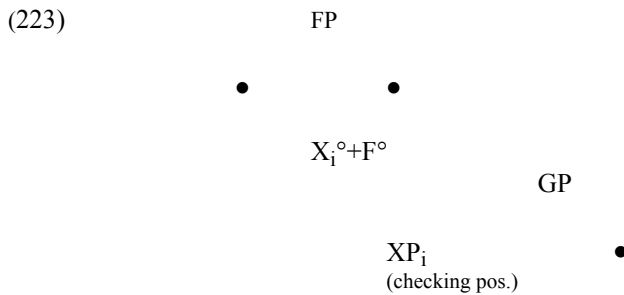


6.3. Derivation: Syntax

6.3.1. To recover the features missing due to the lack of Σ° , a clitic pronoun must associate with prosodic features, a consequence of (196) above. There being no syntactic head which assigns such features structurally, clitic pronouns must surface in a local relation with a c-commanding Σ° itself.

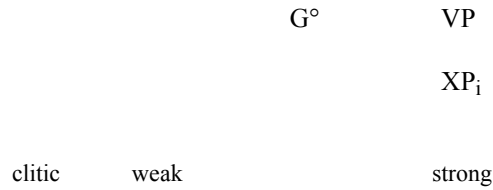
With respect to syntactic placement, a clitic pronoun is thus faced with an apparent contradiction: To compensate the absence of functional case-features, it must occur in a specAgrP at S-structure, and to compensate the lack of Σ° it must simultaneously occur in a local relation with Σ° .

6.3.2. The only solution to this dilemma is to exploit both types of possible local configuration with an x° : specifier-head agreement and incorporation, through a derivation of the type:



negation (i.e. to emphatic and contrastive readings). It is an intriguing hypothesis that this link is a reflex of the fact that both polarity and accentuation features are realisation of one and the same set of features (i.e. one is derivative upon the other) realised in Σ° .

⁶⁵ Although the structure in (222c) could express the claim often made on the basis of Romance languages that (3rd person) clitics ARE determiners (compare (222c) with (190b)), it does not necessarily do so. This claim is in fact undermined by the observation that some languages manifest one paradigm but not the other: Slavic languages have clitics but not determiners, Brazilian Portuguese has determiners but no corresponding clitics. It would not be an unwelcome result that clitics realise more heads than determiners, given the non-perfect homophony between the two paradigms (e.g. in Italian: *il/lo* (det.) vs. *lo* (3rd sing. clitic), *i* (det.) vs. *li* (3rd pl. clitic)).



Only through such a derivation is the clitic associated with both Agr° and x° at S-structure.⁶⁶

6.3.3. That (224) is an accurate representation of clitic-placement has been argued many times, on grounds totally independent from the present concerns (mainly linked to agreement found on past-participles), cf. among others Sportiche (1989).

6.3.4. Incorporation opens up an unexpected possibility: What is F° above? Obviously a head associated with the adequate (prosodic) features missing in clitic pronouns (but not in weak and strong pronouns). But there are two such heads: Σ° , by hypothesis, and (the head containing) L° , by definition, since a lexical head contains all features of its associated functional projections. It thus follows from the above system that the x° chain of the clitic has its head either in the head hosting v° or in Σ° .

This is precisely what is needed. Typologically, clitic pronouns pattern in two groups: They appear either around the second position of the clause (C2 clitics), i.e. in Σ° , or on the verb (ad-verbal clitics), i.e. in the functional head hosting v° (cf. Starke (1993b) for discussion of C2 clitics along these lines).⁶⁷

6.4. Derivation: Prosody

The fact that weak and strong pronouns, but not clitic pronouns, have lexical word-accent (possibly later erased in weak elements through prosodic restructuring) derives from the hypothesis that all prosody related features of L° are realised in Σ° . Clitic pronouns have no prosody related features and are syntactically associated with them only *pro-forma* through an adequate configuration. Clitic-pronouns thus end-up in the prosodic domain of an adjacent non-clitic element. Again, this is a sketch of a path which seems plausible, rather than a full-fledged proposal.

7. DERIVATION: CHOICE OF PRONOUNS

All but one of the asymmetries between clitic, weak and strong pronouns are now reduced to a unique underlying primitive, lack of the highest functional projection. The remaining fact to explain is the choice preference. Given the existence of the three classes, every pronoun is potentially realised in three distinct ways; the profusion so created is regulated by a very strong, cross-linguistic generalisation:

(225) clitic < weak < strong

⁶⁶ A surprising result of this analysis is to *derive* the fact that there are three pronominal classes, and not two or four. This follows from the fact that there are only two possible (distinct) types of chains, XP and x° chains, together with the strict locality condition on recoverability. In other words, the fact that there are two distinct types of chains entails that two elements at most may be recovered, and therefore that there can be only three classes of pronouns w.r.t. deficiency: non-deficient ones, deficient ones with one element to recover, and deficient ones with two elements to recover.

⁶⁷ None of these possibilities are open to weak pronouns: Weak pronouns are not forced to incorporate, the simplest option of spec-to-spec displacement being open to them. But displacement into specVP is impossible, this being the position of the external argument, and displacement into specXP where x° contains the verb, i.e. $[_{specXP} weak [_{x^\circ} [V] x] \dots]$ is plausibly not local enough to establish the correct configuration with v° (cf. Cardinaletti & Starke (1995:4.3.1) for discussion of this last point).

This generalisation captures asymmetries such as (230a-b) or (232a-b): The most deficient form must be chosen if it can be chosen. This is possible in (230b), but not in (232b), because deficient pronouns can refer to prominent but not non-prominent discourse referents, §2.4, §5.4. Similarly for (228b) vs. (230a): Since there are no deficient nouns in French, *Jean* is the most deficient form possible in (228) and therefore allowed. In (230a), on the other hand, there exists a licit more deficient form, and the strong form is therefore not licit:

- (227)a. A: Moi je vois Jean et Marie.
 b. B: Moi je vois Jean.
 I, I see John and Mary
- (229)a. * Pierre voit lui_{odr}. <odr = "old" (i.e. prominent) discourse referent>
 b. ✓ Pierre le_{odr} voit.
- (231)a. ✓ Pierre voit lui_{ndr}. <ndr = "new" (i.e. non-prominent) discourse referent>
 b. * Pierre le_{ndr} voit.
 Pierre him sees him

7.1. Minimise structure

Given the respective syntactic structures of the three classes, the generalisation (226) reduces to the statement that a "smaller structure" is obligatorily chosen, if possible:

- (233) *Economy of Representations:*
 Minimise Structure.

Only if the smaller structure is *independently* ruled out, is the bigger alternative possible. ⁶⁸

7.2. Null pronouns

7.2.1. It is often held that a special filter, called "Avoid (lexical, A.C. & M.S.) Pronoun" in Chomsky (1981), applies to force the choice of null pronouns over their overt counterparts (in unmarked situations, i.e. where the referent is prominent in the discourse, as in the non-focussed coindexed embedded subjects):

- (235) a. ✓ Gianni_i partirà quando **pro**_i avrà finito il lavoro. (Italian)
 b. * Gianni_i partirà quando **lui**_i avrà finito il lavoro.
 c. * Gianni_i partirà quando **pro**_i, non il suo capo, avrà finito il lavoro.
 d. ✓ Gianni_i partirà quando **lui**_i, non il suo capo, avrà finito il lavoro.
 John will.leave when he (, not the his boss,) will.have finished the work

This filter reduces to Economy of Representations: The choice of *pro* over *lui* is a special case of Minimise Structure, *pro* being a weak pronoun and *lui* a strong pronoun.

Further, where the two proposals make different predictions, Minimise Structure, or Economy of Representations, is systematically favored over Avoid Pronoun. In languages which have two weak pronouns, one overt and one null, Avoid Pronoun requires that the null be chosen over the realised one where possible, exactly as in (236), while Minimise Structure leaves the choice free. The latter is correct: ⁶⁹

- (237) a. ✓ Gianni_i partirà quando **pro**_i avrà finito il lavoro. (Italian)
 b. ✓ Gianni_i partirà quando **egli**_i avrà finito il lavoro. (Italian)
 John will.leave when he will.have finished the work

⁶⁸ Of course this may be translated as, or be derivative upon, "Minimise Features", cf. fn. 43. This holds of all subsequent discussion. See also Picallo (1994) for an "Avoid Features" view of the Avoid Pronoun Principle of Chomsky (1981).

⁶⁹ Although stylistic differences are involved, it is not the case that the two pronouns belong to disjoint registers, which would make the point irrelevant: At the stylistic level in which *egli* is possible, pro-drop is also allowed.

Conversely, if a language has two realised forms for one pronoun, one being deficient and the other strong, Avoid Pronoun, if anything, predicts a free choice, whereas Minimise Structure correctly requires the use of the deficient over the strong one. I.e., only Minimise Structure captures the uniformity of the French (240), Italian (236), and Olang-Tirolese (242) paradigms:

- (239) a. ✓ Jean_i pense qu'il_i est intelligent. (French)
 b. * Jean_i pense que lui_i est intelligent.
 c. * Jean_i pense qu'il_i est intelligent, pas son chef.
 d. ✓ Jean_i pense que lui_i est intelligent, pas son chef.
 John thinks that he is intelligent, not his boss
- (241) a. ✓ Hans_i denkt, daß a_i intelligent isch. (Olang Tirolese)
 b. * Hans_i denkt, daß e:r_i intelligent isch.
 c. * Hans_i denkt, daß la a_i intelligent isch.
 d. ✓ Hans_i denkt, daß la e:r_i intelligent isch.
 John thinks that only he is intelligent

Similarly, Avoid Pronoun cannot explain the choice among object pronouns across Romance, Slavic or Germanic: A realised object clitic or weak pronoun is chosen over an (equally realised) object strong pronoun, (230). Finally, Economy of Representations explains the noun-pronoun asymmetry, (228b) vs. (230a), while an approach in terms of Avoid (lexical) Pronoun would have nothing to say about this case.

In sum, Minimise Structure, but not the Avoid Pronoun Principle, captures the parallelism between the behaviour of subjects and objects, between null-subject languages and non-null-subject languages (and across categories, §9), while explaining the noun-pronoun asymmetry. Such a coverage gives retroactively strong credence to the primitive upon which it is based: the tripartition between clitic, weak and strong elements and Structural Deficiency.

7.2.2. Most other filters / principles which have been stated in terms of null vs. realised pronouns are to be restated in terms of the interplay between Minimise Structure and the three classes of clitic, weak and strong pronouns. Montalbetti's Overt Pronoun Constraint is a good illustration of this. Montalbetti (1984) observes that *if mild focalisation is ignored*, the following paradigm holds (the paradigm is slightly adapted and transposed from Spanish to Italian):

- | | | |
|---|------------|--------------------------|
| (243)a. ✓ Gianni ha ammesso che | <i>pro</i> | ha bevuto tutto il vino. |
| b. ✓ Nessuno ha ammesso che | <i>pro</i> | ha bevuto tutto il vino. |
| c. ✓ Nessuno ha ammesso che <i>pro</i> ha detto che | <i>pro</i> | ha bevuto tutto il vino. |
| (245)a. ✓ Gianni ha ammesso che | <i>lui</i> | ha bevuto tutto il vino. |
| b. * Nessuno ha ammesso che | <i>lui</i> | ha bevuto tutto il vino. |
| c. ✓ Nessuno ha ammesso che <i>pro</i> ha detto che | <i>lui</i> | ha bevuto tutto il vino. |
| John / nobody has admitted that he has said that | he | has drunk all the wine |

Montalbetti concludes that an overt pronoun cannot be directly Q(uantifier)-bound: An intermediate *pro* is necessary. Unfortunately, when focus is taken into account, as it must be, given the preceding paradigms, judgments become very delicate: Every example in (246) varies from unacceptable to fully acceptable, depending on the amount of focus on *lui*. To obviate this difficulty, it suffices to observe pairs of overt / null examples, which do not involve focus. This is the case of coordination for instance (to be compared with (244)):

- | | | |
|---|---------------------------|-----------------------------|
| (247) a. ✓ Gianni ha ammesso che | <i>lui</i> e i suoi amici | hanno bevuto tutto il vino. |
| b. ? Nessuno ha ammesso che | <i>lui</i> e i suoi amici | hanno bevuto tutto il vino. |
| c. ✓ Nessuno ha ammesso che <i>pro</i> ha detto che | <i>lui</i> e i suoi amici | hanno bevuto tutto il vino. |
| John / nobody has admitted that he has said that | he and his friends | have drunk all the wine |

The same contrast obtains, although significantly weaker (judgments are somewhat unclear). Now the same argument as above holds: Non-*pro*-drop languages which have two distinct realised pronouns have the same (weak) contrast. The French paradigms (250a-b) reproduce the Italian (244)-(248), and the same holds of Germanic dialects with two forms for nominative pronouns, as St-Galler Swiss German for instance (M. Schoenenberger, p.c.) :

- (249)a. ✓ Jean a admis qu' **il** a fini la bouteille.
 ✓ Personne a admis qu' **il** a fini la bouteille.
 ✓ Personne a admis qu'**il** a dit qu' **il** a fini la bouteille.
 b. ✓ Jean a admis que **lui** et ses amis ont fini la bouteille.
 ? Personne a admis que **lui** et ses amis ont fini la bouteille.
 ✓ Personne a admis qu'**il** a dit que **lui** et ses amis ont fini la bouteille.
 John / nobody has admitted that he has said that he and his friends has / have finished the bottle

Since one and the same paradigm obtains in pro-drop (here Italian, but the same holds of Slovak) and non-pro-drop (here French and St-Galler German) contexts, the Overt Pronoun Constraint should not refer to the overt / non-overt distinction, but to the strong / deficient distinction, i.e. it should become the Strong Pronoun Constraint.

7.3. Up to crash

7.3.1. Stronger (i.e. bigger) pronouns are possible only where smaller ones are impossible. But what renders the smaller one impossible? Intuitively, a bigger pronoun is possible only if generating a smaller pronoun in its place yields an impossible derivation, i.e. "crashes". *Minimise Structure* thus means "minimise up to crash".

Generating a deficient pronoun instead of a strong pronoun does not result in an acceptable derivation in coordination (because the deficient pronoun would not be in a local relation to Agr^o at S-structure), with c-modification, with dislocation (considering the latter to be base-generation, Cinque (1990)), etc., i.e. exactly in the cases in which strong pronouns are allowed.

7.3.2. Adding a clause to Economy of Representations, (234), in order to incorporate its "up to crash" nature ("minimise structure, unless it leads to ungrammaticality") would not be an optimal solution: All other "economy" principles (Pesetsky (1989), Chomsky (1991, 1993)) would repeat the same clause.

Take chain-formation: A "longer (bigger) chain" is impossible where a "shorter one" is possible, and the longer is possible only if the shorter would lead to a crash (Rizzi (1990), Chomsky (1993)). The "up to crash" property is inherent to all principles of the "economy" type, among which Minimise Structure (typically resulting in informal modal renderings such as "if you *can* x, you *must* x", or "do the smallest *possible* x").

Ideally, the "up to crash" nature of all these principles should be stated only once, and not repeated in each principle.

7.3.3. Since all "economy" principles are of the "Minimise α " format, where α = "structure, chains, links, overt movement, etc.", an elegant solution is thus to postulate a unique general principle covering all economy-type constraints:

- (251) Minimise α .

of which Economy of Representations, Economy of Derivation, etc. are only special cases. This general principle must now be understood as incorporating the "up to crash" clause (*minimise α up to crash*). Of course, to limit the scope of α is then non-trivial.⁷⁰

7.4. Level of application

⁷⁰ By definition, all principles of the economy type, including Minimise Structure (and its predecessor Avoid Pronoun), are transderivational, albeit in a limited way (sometimes so limited as to be trivial): By definition, these principles allow a derivation *only if the "next more economical" is not possible*. In more intuitive terms, we know whether to further minimise α , or stop there, only by knowing that further minimalisation will trigger ungrammaticality. This is inherently transderivational.

Phrasing derivation in filtering terms (i.e. allowing derivations to crash) does not resolve this problem: The outcome of some derivations (crash or not) is determined by reference to the outcome of another derivation. (We thank R. Huybregts for concentrating our attention on this issue).

The preceding discussion presupposes that Economy of Derivations applies at the point where pronouns are generated, i.e. at tails of chains. It need not be stipulated however that (core) lexical insertion is the place where Economy of Derivations applies. Optimally, Minimise α applies everywhere. It just so happens that Minimise α as Minimise Structure can apply at lexical insertion, while other instantiations of Minimise α (such as Minimise chains) cannot, for purely independent reasons (i.e., there are not chains at core lexical insertion).

This also answers another curious observation. Apparently, Minimise α *qua* structure is contradictory with Minimise α *qua* chains: Minimising structure leads to bigger (overt) chains. From this, it could be inferred that there is a ranking among economy principles, to ensure that one takes precedence over the other in case of contradictory outcome. But no such thing is necessary in the present case: Due to independent reasons, Minimise α *qua* structure applies prior to Minimise α *qua* chains.

8. REFINEMENTS

8.1. Results and problems

8.1.1. Each of the asymmetries between clitic, weak and strong pronouns noted in (150) has now been derived, and this through a theory which meets the *a priori* standards set in the *preliminary* to the second part.

The unique primitive is structural deficiency: lacking (the features of) the highest functional projections. Structural Deficiency is either directly responsible of the asymmetries (as with morphology, range, prosody, modification), or indirectly through its interplay with two conditions: Economy of Representation (deriving the choice-generalisation) and Recoverability (deriving displacement of a minimised element).

8.1.2. Although this may seem like a minimal account of the rich set of asymmetries (150), several background assumptions are built into the system. For instance:

(i) recoverability applies to deficient pronouns. Intuitive as it may be, this is an odd fact as things stand: Nothing requires recoverability to apply at all. Why cannot a weak or clitic pronoun be base generated with nothing to recover since nothing is *lost* in the first place?

(ii) deficient pronouns must recover features that are lacking *with respect to a corresponding strong pronoun*. Again, as it stands, the Economy of Representations does not express this primacy of strong pronouns (just as *Minimise α* does not encode any putative primacy of non-minimal forms). Why are not weak pronouns, or some arbitrary dummy noun, the reference point, for instance? It surely would be a logical possibility.⁷¹

(iii) nominal (extended) projections have the same structure (and labels) as verbal (extended) projections.

These assumptions need not be primitives. A particular implementation of Minimise Structure derives them all, significantly simplifying the overall profile of the theory (Section 8.3.).

8.1.3. Furthermore, as things stand, at least one major misprediction occurs: If the possibility of deficient pronouns always blocks the use of strong pronouns (*Minimise Structure*), how can strong pronouns be used to refer to new discourse elements?

8.2. Indexes and reference sets

⁷¹ The primacy of strong pronouns is also shown by acquisition data. In Cardinaletti & Starke's (1994a) interpretation, asymmetries linked to acquisition of principle B of Binding theory (Jakubowicz (1984), Wexler & Chien (1985)) reduce to the fact that, confronted to a pair of <deficient ; strong> ambiguous pronouns, a child always resolves ambiguity by postulating only one form, the strong one.

Superficially, the latter problem is trivial: Deficient pronouns cannot bear an index, occasions where an index is needed will thus force a strong pronoun to be present, the correct result:

- (253)a. ✓ Jean a vu **lui**_{ndr}.
 b. Jean I' a vu **t** ✓_{odr} / *_{ndr}.
 John him has seen him

The trouble is to give a coherent interpretation to "deficient pronouns cannot bear an index".

One possibility would be that indexes occupy C° and thus require the occurrence of a strong pronoun in order to appear (§5.4.2). This was rejected in §5.4.7 in view of the asymmetry between case and index: Lack of case in C° always triggers Recoverability effects (i.e. displacement), so that lack of putative-index in C° should have the same effect. This is however not true (cf. expletives, impersonals, non-referential datives). Unless the recoverability requirement can be made selectively blind to the index, this asymmetry indicates that the index is not lost in the first place.

It was thus concluded that the index is absent from syntax altogether: All falls into place if indexes are the interpretation of the "functional case-features" by post-LF interpretive systems. To explain (254), it is now necessary that a post-syntactic process (index assignment) influences an intra-syntactic process (non-application of Minimise Structure in (254a)). If we follow Chomsky (1994), as we did in assuming the inexistence of indexes in syntax, this is a typical situation: Post-PF filters on possible words for instance force displacement of larger constituents than would have otherwise been required (cf. the derivation of e.g. *who did you see?* in Chomsky (1995:Ch. 4)).

But the external filter responsible for (254) is particularly delicate: Contrary to the usual case in which such filters systematically rule out one possibility, allowing the other, both (254a) and (254b) have a well-formed interpretation. What seems to be the case, is that the nature of the index contributes to the definition of the reference-set (the set determining which derivations are to be compared): Compared LF-representations not only should share their building blocks (Deep Structure, Enumeration) but their interpretation must also be identical (the interpretation of two pronouns cannot be identical if one has a new index, "read off" from functional case-feature, while the other inherits it from an antecedent). Thus, given "object = ndr" in (254), the strong pronoun is the minimal possible element, while the reverse obtains if the object is "odr".

Ultimately, Minimise α should integrate this requirement and become: Minimise α , up to crash, given a particular choice of interpretation.

8.3. Implementing Economy of Representations and recoverability

8.3.1. The puzzles of recoverability raised in §8.1.2. (why does it apply at all, why is there a primacy of strong pronouns) are answered at once by a particular implementation of Minimise Structure: Only strong elements are ever generated in base.

8.3.2. As a consequence, *Minimise α* , where α = structure (or features), can only be *Erase α* : If only full (strong) structures are generable, deficient elements can only be obtained through deletion.⁷²

Strong elements define which features there are to be recovered *because* deficient elements are obtained by erasing part of strong elements; Recoverability applies to Economy of Representations *because* the latter involves actual deletion.

⁷² An erasing-implementation was first proposed to us by D. Sportiche (p.c.). The particular use we have made of it is however not to be blamed upon him.

Such an implementation opposes the one in which structures are simply built in parallel and then compared w.r.t. economy. This conclusion that "starting from the most uneconomical and stripping down" is to be preferred over "parallel generation and choice" is not automatically transposable to other instances of *Minimise α* : In the case of Minimise Structure, such a course of events is forced by the properties of the syntactic lexicon (cf. below). Nothing seems to force this in the case of chains, to the opposite.

Finally, such an implementation presupposes the (standard) view that "there cannot be holes in structure", i.e. *Erase α* can only erase the *highest* functional projection, and not some intermediate layer.

8.3.3. Deficient pronouns being the result of a syntactic process, it is a necessary consequence of this model that the morphophonological form of (these) lexical items is accessed only after (some) syntactic derivation. Access to the (morphophonological) lexicon must therefore take place after (some) syntactic derivation (cf. also den Besten (1976), Otero (1976), Halle & Marantz (1993), Jackendoff (1994)). In turn, this implies the existence of a presyntactic lexicon, providing the necessary features for syntactic derivations:

(255) syntactic lexicon

full lexicon

LF

PF

8.3.4. Post-lexical insertion is independently needed: Only through such an account can the existence of functional fused forms be explained. Forms such as *du* or *des* (of.the) in French and many other cases are portemanteau morphemes realising two distinct functional heads.

First, such forms cannot be base-generated since doing so would require generating features in the wrong head, i.e. phi-features under C^0 or referential and case features under I^0 . But this is highly unsatisfactory, and incoherent with the very idea of distinct functional projections, since the latter are distinct only to the extent that they encode distinct features.⁷³

Second, such a base generation account is also empirically inadequate: The occurrence of some fused forms, such as French *du*, is dependent upon syntactic configuration. If a high nominal modifier occurs, the two heads remain distinct ... *de tout le monde*... 'of all the people' versus ... *du beau monde* ... 'of.the nice people'. The choice between the morphophonological *de le* and *du* cannot be performed prior to syntax, or forms such as *... *de le monde*... (and maybe *... *du tout monde*...) would not be filtered out.

8.3.5. What are the properties of such a "split lexicon" ?

First, given that functional heads are nothing but reduplications of features contained in lexical heads, it would be redundant to postulate them in the syntactic lexicon. All information they contain is already contained in the lexical element, and the syntactic tree may be constructed on the sole basis of the latter.

Second, it is not the case that the full lexicon contains morphophonological information and that the syntactic lexicon is simply its syntactic counterpart: Several entries exist in the full but not in the syntactic lexicon. Minimally, deficient pronouns and fused forms exist only in the full lexicon. More generally, if the first point above is correct, all function words exist only in the full lexicon.

The (pre)syntactic lexicon is thus a type of "abstract" or "core" lexicon, containing only grammatical features for a subset of lexemes, sometimes designed as a "functional lexicon" (an adequate though slightly misleading term in the present approach). The type of derivation intended here is that, first, (abstract) lexical items are selected from the syntactic lexicon (cf. fn. 74 on abstractness), the features of these are then projected onto a set of functional projections, each reduplicating features of the lexical element, in a one-step operation (somewhat in the spirit of (a restricted view of) *Elementary Trees* of Frank & Kroch (1993), cf. also Kroch & Joshi (1985)). Those full phrases (extended projections) then combine to form the (deep structure) syntactic representation. Only after (some) syntactic derivation is the full lexicon accessed.

8.3.6. The fact that nominal phrases (C_nP) and verbal clauses (C_vP) are associated with identical functional projections, as well as the fact that only strong pronouns may be generated in the base, now comes down to a restriction on the syntactic lexicon. Given that functional heads reduplicate features of lexical heads, the identity of strong pronouns, noun-phrases and verbal clauses implies that all three

⁷³ These arguments do not apply to cases in which one of the heads is lexical, since by definition all functional features also occur in the lexical head. The alternation between *does not sing* and *sings* is thus immune to the above discussion (unless *do* is taken to realise both phi and tense features simultaneously, in which case the same problem arises again).

realise an identical array / set of (underspecified) features (this also holds of other categories, cf. §9). This may now be derived from a property of the pre-derivational lexicon: All entries of the syntactic lexicon realise one, and only one, array / set of features, $\alpha_1 \dots \alpha_n$. These features then project onto what invariably becomes the {verbal, nominal, adjectival, etc.} complementiser phrases, agreement phrases, etc. (cf. also Starke (1993a), (1995)): ⁷⁴

(257) All entries of the syntactic lexicon realise a fixed array of (underspecified) features, $\alpha_1 \dots \alpha_n$.

The primacy of strong pronouns (§8.1.2) and the common format of verbal and nominal phrases (§5.2.3) are reflexes of this strong restriction on the entries of the syntactic lexicon.

8.3.7. If, given (256)-(258), *Minimise α* is instantiated as *Erase α* , what is the status of Recoverability? Supposing that the latter should not be integrated into *Minimise α* but is an independent principle, a radical though natural reformulation of the Projection Principle yields exactly the correct result:

(259) *Projection Principle:*
Information of level R must be present at R+n.

8.3.8. The account proposed in §4-6 can now be significantly simplified, through the interplay of three independent constraints: (i) the rigidity of the syntactic lexicon, (258), which is only capable of generating what corresponds to full CPs, (ii) the generalised economy principle, (252), understood as integrating an "up to crash" clause, and (iii) the Projection Principle, (260), forcing to recover erased features.

Full pronouns are always inserted in what corresponds to tails of chains. On the one hand, the interplay of *Minimise α* and the Projection Principle determine which type of pronoun will be chosen: By *Minimise α* , pronouns are reduced as much as possible ("up to crash"), and by the Projection Principle erasing of unrecoverable features leads to ungrammaticality. This entails that pronouns referring to non-prominent discourse entities, coordinated, dislocated, isolated pronouns, etc. will always be strong, and that in all other cases, the deficient counterpart will be obligatorily used. ⁷⁵

On the other hand, once the choice is made, if a deficient form is produced, the Projection Principle forces a peculiar derivation: Recovery of the erased features implies that the deficient pronoun must be displaced at S-structure to establish a local relation with the relevant head, to respect the Projection Principle both at PF and LF. ⁷⁶

8.3.9. The initial question, i.e. what makes the class 1 / class 2 distinction (i.e. deficient vs. strong pronouns) so radically different from usual lexical classes (verbs / adjectives, transitives / ergatives, etc.), now receives a simple answer. While lexical classes arise from difference in feature composition of the lexical item (possibly in the core syntactic lexicon), class 1 / class 2 distinctions arise through

⁷⁴ A posteriori, it is unsurprising that such a strong, universal condition holds of the core lexicon. Many of its properties are largely universal: Classes such as ergative / transitive, noun / pronoun, psych verb / perception verb, etc., i.e. most syntactically relevant classes which must therefore feed syntax, are attested in widely different and unrelated languages, and are thus optimally attributed to a fix core of language.

Both this observation and the text conclusion that only one format is available for all entries of the syntactic lexicon suggest that the latter is a highly constrained, strongly UG-driven lexicon. An intriguing possibility is that this lexicon contains entries only for types (i.e. classes) of lexical elements (perception verbs, ergative adjectives, pronouns, etc.) but not for each individual lexical item. In such a case, entries of this lexicon are learned only to the limited extent of "parameter setting", i.e. fixing the value of features associated with word-classes. If verbs and nouns, say, have different surface orders w.r.t. their arguments (SOV vs. SNO), this may reduce to the distinct feature-content of the abstract verb and noun in the syntactic lexicon.

⁷⁵ Unless, of course, no such a form exists in the full lexicon of the language. It is worthwhile noting, however, that we have never encountered a language which does not have two series of pronouns, possibly a non-existent state of affairs.

⁷⁶ The asymmetry between case and index (§5.4.7) entails that case but not index is part of the fixed array of features constitutive of entries of the syntactic lexicon.

syntactic processes (deletion). Class 2 (i.e., deficient elements) is a structural subset of class 1 (i.e., strong elements). This entails, among others, that the nature of lexical classes may slightly vary from language to language, but that the deficient / strong distinction is uniform, being due to an abstract grammatical process, *Minimise α* , universal by hypothesis.

9. BEYOND PRONOUNS

The preceding remarks focus on a narrow class of grammatical elements, personal pronouns. Ideally, this should not be so: The same tripartition (strong, weak, and clitic), revolving around the same set of asymmetries, obtains outside the realm of personal pronouns.

Unfortunately, while intensive work has been concentrated on pronominal clitics in the last two decades, scarcely any material is available on the differing properties of clitic, weak and strong adjectives, nouns, etc. Compensating for this asymmetry here would have been impossible without both exceeding space-limits of an article and provoking an unwelcome disbalance between description and analysis.

The approach developed above however naturally extends beyond the realm of personal pronouns to derive all major (known) aspects of non-pronominal deficient categories. In what follows, such an extension is illustrated through a few chosen pieces from adverb-syntax, a preliminary sample of a forthcoming more thorough treatment (cf. also (18), (122) and (124)).

9.1. An example: Description of deficient adverbs

9.1.1. A subset of Greek adverbs transparently illustrate the interplay between morphology, distribution and sensitivity to constructions such as coordination (cf. Rivero (1992), Alexiadou (1995), a.o.):

- (261) a. To {***sigá**} évrasa {✓**sigá**}.
 b. To {✓**sigo**}-évrasa {***sigo**}.
 it slowly I boiled slowly

The unaccented form *sigo* necessarily occurs in a high derived position to the left of the verbal element in (262b), while the full accented form *sigá* has no such restriction and appears in the usual postverbal position, (262a). As with personal pronouns, the deficient form cannot be coordinated (or c-modified):

- (263) a. ✓ To évrasa **sigá** ke **kalà**.
 b. * To **sigo** ke **kalo-** évrasa.
 it slowly and well-I boiled

The triple correlation between morphology, necessary displacement and sensitivity to coordination (and c-modification) is exactly identical to that found amidst personal pronouns.⁷⁷

9.1.2. Similar paradigms hold in Romance (cf. Starke (1994); see also Lonzi (1991) for Italian). The French *bien*, for instance, obligatorily appears before the past participle in compound tenses (as in (266), to be judged with flat intonation), unless it is coordinated, c-modified or focussed, (268):

⁷⁷ It is irrelevant if the morphological difference between the two forms may be phonologically defined: What matters is that this difference strictly correlates with displacement, capacity to enter coordination, and other typical properties of deficient elements, such as semantic deficiency (see below).

The contrast between (266b) and (272) reduces to the difference in French verb-placement between tensed and untensed verbs (Pollock (1989)). To give a more minimal pair, along with its underlying configuration:⁷⁹

⁷⁹ This example further shows that motivation for deficient-adverb placement cannot be prosodic in a simple sense: From the preceding text-examples, it could have been inferred that (deficient) adverbs can simply not be clause-final, maybe for prosodic reasons. This is however not the case: All versions of *bien*, for instance, may perfectly be clause-final whenever verb-displacement has taken place, as in (272) (cf. Pollock (1989)).

- (273)a. Pierre [cuisine_i **✓bien** t_i .
 b. Pierre [a {**✓bien**} cuisiné {***bien** / **✓bien mais peu**} .
 Pierre has well cooked well / well but little

9.1.4. Not only do adverbial asymmetries mimic pronominal contrasts in morphology, distribution, choice and sensitivity to coordination / c-modification, but semantic and prosodic properties are also reproduced. Just as deficient but not strong pronouns may be rangeless (loosely "non-referential"), deficient but not strong adverbs may be "non-referential": In all examples of deficient *bien* given above, it is ambiguous between a literal reading (the manner adverb corresponding to English *well*) and a discourse-particle meaning 'certainly / indeed' (cf. also Belletti (1990)). This is most clear in weak-climbing contexts (cf. fn. 78):

- (275) Il a **bien** du [parler t
 he has well "must" to.speak
 'He certainly / indeed / etc. has been obliged to speak'

This reading is never available with strong adverbs (i.e. post-participial *bien*, as in (268)).

9.1.5. Finally, weak but not strong adverbs trigger sandhi rules such as liaison. Whereas it is true of all adverbs that no liaison obtains before an adjunct (judgments hold of spoken Geneva French):

- (277) a. * Je m'entends bien avec Marie.
 I me hear well with Mary
 'Mary and I get along well'
 b. * Il aboie beaucoup après le dinner.
 he barks a lot after the dinner
 c. * Il avance lentement en ville.
 he advances slowly in city
 d. * On avance jamais avant une conférence.
 one progresses never before a conference

a subset of adverbs, exactly those which qualify as weak, undergo liaison in front of past participles:

- (279) a. ✓ Je me suis bien entendu avec Marie.
 I me heard well with Mary
 'Mary and I got along well'
 b. ✓? Il a beaucoup aboyé après le dinner.
 he has a lot barked after the dinner
 c. *? Il a lentement avancé.
 he has slowly advanced
 d. *? On a jamais avancé le travail avant une conférence.
 one has never progressed the work before a conference

The conditions on adverb-liaison may now be significantly simplified. Apart from usual locality conditions and segmental prerequisites, the list of adverbs which undergo liaison now reduces to a simple statement: Weak but not strong adverbs undergo liaison. In the absence of such a distinction, a list of adverbs would have to be stipulated.

9.1.6. In sum, all of morphological, distributional, prosodic, choice, and construction-sensitive asymmetries are found with adverbs, exactly as with personal pronouns: ⁸⁰

⁸⁰ As with pronouns, the simultaneous existence of semantic and prosodic correlated with the deficient / strong distinction indicates that the primitive underlying the class-distinction is not restricted to one or the other component, i.e. neither purely prosodic, nor purely semantic.

- (281) Deficient adverbs, contrary to strong adverbs:
- must occur in a derived position at S-structure
 - cannot enter coordination, c-modification
 - are preferably chosen
 - may be morphologically reduced w.r.t. the other series
 - may be "non-referential"
 - undergo prosodic restructuring.

9.2. An example of derivation: Deficient adverbs

9.2.1. The derivation of the differing properties of the two classes of adverbs by and large mirrors that of the different classes of pronouns: Lack of the highest functional layer, CP, triggers mild deficiency, and the additional absence of a second layer, Σ P, triggers severe deficiency, i.e. cliticness.

9.2.2. First, that the high functional layers of adverbs are similar to that of nouns and pronouns, is suggested by the Senigallia dialect discussed above in §5.1.4: Not only does the dummy morpheme *ma* appear on strong noun phrases and strong pronouns, (284), but also on strong adverbs, (286) (examples from Sellani (1988)): ⁸¹

- | | | | |
|------------|--|---------|---------------------------------------|
| (283) a. ✓ | tutt l' ser arconta ma _{DAT} i fiulini
all the evenings she.tells-tales <i>ma</i> the children | (p. 9) | |
| b. ✓ | e po' s' sent urlà ma _{ACC} i venditori
and then SI hears shout <i>ma</i> the venders
'and then one hears the venders shout' | (p. 39) | |
| c. ✓ | Ho vist malu .
I.have seen <i>ma</i> .him | | |
| (285) a. ✓ | so v.nuta maquà
I.am came here | (p. 9) | (cf. the Italian counterpart: qua) |
| b. ✓ | che s' magn.n anch'ogg malagiù
which SI eat also today there | (p. 9) | (cf. the Italian counterpart: laggiù) |
| c. ✓ | malì dietra l' Cumun
there behind the town hall | (p. 34) | (cf. the Italian counterpart: lì) |

9.2.3. Exactly as with personal pronouns, the full lexicon may contain both strong and reduced adverbs, but only full (strong) forms are generable by the syntactic lexicon. By *Minimise α* , these full forms are then reduced as much as possible.

This already entails (i) the morphological asymmetry (deficient adverbs are reduced), (ii) the prosodic asymmetry (deficient adverbs do not count as major constituents), (iii) the choice asymmetry (having less structure, the more deficient version is preferred), (iv) the c-modification asymmetry (having no C° they cannot be modified by CP-modifiers).

Furthermore, since the highest layer (C°), when present, necessarily contains *some* feature (or it would not be projected), its absence entails the absence of some feature. To compensate for this absence, the deficient adverb must occur in the checking position of this feature at S-structure (and similarly for clitic adverbs with the additional incorporation, exactly as with pronouns). ⁸²

⁸¹ A similar point holds of adjectives: In a number of languages, a dummy morpheme appears on adjectival phrases which exactly parallels the dummy morpheme appearing on noun phrases.

⁸² The existence of lexical clitics, as the above adverbs, but also nouns, adjectives, etc., provides a strong argument against an alternative approach to deficient-placement proposed in Sportiche (1992). Sportiche suggests that the only analysis of clitics open to the learner is that in which the clitic realises a functional head (his §1.1), and provokes displacement of a silent argument into its specifier, due (roughly) to a clitic-criterion (his §1.3) (but cf. his fn. 27). This analysis is globally compatible with the existence of a tripartition, although the details of the approach are not supported by the properties of the three classes:
(i) Sportiche's base-generation of clitics in functional heads entails that all clitics are functional. This is in flat contradiction with the existence of lexical clitics, to the extent that a meaningful generalisation englobes pronominal and lexical clitics.

Finally, since the syntactic lexicon is limited to one array of features, if referential features, α_i , occur in C° in one type of phrase, they occur in C° in all phrases. It follows that only deficient adverbs lack referential features and may act as "non-referential discourse-particles".⁸³

Obviously, many details are left untouched here, and the existence of deficient adverbs would force a modification of several points of the preceding account, but no principled problem seems to arise. The theory developed on the basis of personal pronouns carries over *in toto* to deficient adverbs, dealing with all major asymmetries described above. By and large, the same holds of tripartitions of adjectives, nouns, quantifiers, *wh*-words, etc., the topic of forthcoming work.

10. SUMMARY AND CONCLUSION

10.1. Prerequisites

10.1.1. The central thrust of the present proposal is that an adequate theory of clitic pronouns, i.e. oppositions between clitic and strong pronouns, such as:

- (287)a. Gianni **la** vede con piacere.
 b. Gianni vede **lei** con piacere.
 Gianni her sees her with pleasure

should be a theory of a considerably enlarged paradigm.

(ii) base-generating clitics as heads also destroys the generalisation of "clitic < weak < strong", given that clitic and weak are now seen as two fundamentally distinct elements. To explain the clitic-over-weak choice, one would presumably require a principle akin to Avoid Pronoun, but the preference of weak over strong (as in the English particle-constructions or the German adverb-pronoun combinations, cf. fn. 35) is then left unexplained, or handed over to some other principle, thus destroying the uniformity across the three classes. (The same objection holds for the loss of the generalisation concerning morphological reduction).

(iii) the criterion part of Sportiche's approach looses the explanation of the semantic contrasts between deficient and strong pronouns. It was argued above in fn. 19 that the explanation of this contrast requires the *absence* of a property, and not the *presence* of a special feature, a state of affairs contradictory with the criterion-approach.

In contrast, an analysis in terms of deficiency is immune to these difficulties.

Looking at deficiency beyond Romance, e.g. Slavic, brings further difficulties for a criterion-cum-base-generation approach: First, criteria do not make sense of the different placement of ad-verbal clitics and C2 clitics: C2 clitics are apparently much higher than ad-verbal clitics, although in a criterion-based approach there is no trigger to clitic-displacement above the base-generation site. The sole solution would seem to be that C2 clitics are NOT much higher, i.e. that both types of clitics are generated in the same place, and remain there, modulo verb-movement. But such an analysis would entail a range of severe difficulties w.r.t. the respective clause-structures of Slavic and Romance, w.r.t. verb-movement, and w.r.t. the general parallelism between V2 and C2 structures (which would be mostly obliterated).

Secondly, the reduced auxiliaries of Slavic (illustrated in §6.2 for Serbo-Croatian) seem to be a counterexample to a clitic-criterion. These auxiliaries pattern both distributionally and prosodically with pronominal clitics. Accordingly, it is traditionally assumed that a strong generalisation relates the two. On the other hand, there is no plausible XP counterpart to auxiliaries which could satisfy the criterion. (In the present framework, this is not a strong objection: Since verbal clitics do not provoke deficiency of their whole CP, they cannot be clitics in the present sense of the term, but rather auxiliaries which move very high for independent reasons).

⁸³ This system makes the prediction that while weak elements of diverse categories (i.e. weak adverbs, weak pronouns) occur in distinct positions, having distinct (maybe \emptyset) features to "check", all clitics occur in the same position within a given construction of a given language. The rare available observations confirm this prediction, but again, this remains an open issue until more data is gathered.

10.1.2. It should be a theory of tripartitions (not bipartitions) of clitic, weak and strong elements, tripartition into which pronominal systems consistently divide, across languages:

(289)a.	Non	gli	dirò mai	<i>*gli</i>	tutto	<i>*gli.</i>
b.	Non	<i>*loro</i>	dirò mai	loro	tutto	<i>*loro.</i>
c.	Non	<i>*a lui</i>	dirò mai	<i>*a lui</i>	tutto	a lui.
	not	to.him / to.them	I.will.say never		everything	

Cross-linguistically, each class shares the same properties, which oppose it to both other classes, with a regularity that indicates the presence of three abstract underlying classes, rather than idiosyncratic lexical accidents.

Most notably, both weak and strong elements cross-linguistically occupy XP positions at S-structure, contrary to clitics found only in X° positions, while, on the other hand, clitic and weak are both *deficient*, i.e. restricted with respect to a large set of constructions, among which coordination (neither of them is coordinable, while strong elements are).

These two properties further illustrate the intermediate status of weak elements (identical to strong w.r.t. x-bar, but like clitics w.r.t. coordination (deficiency)), resulting in a typical *clitic* < *weak* < *strong* relationship across the three classes. This is most strikingly illustrated by the fact that all properties differentiating weak elements from strong elements also differentiate clitic elements from strong elements. The deficient characteristics of weak elements are a *proper subset* of the deficient characteristics of clitic elements, again *clitic* < *weak* < *strong*.

10.1.3. A theory of clitic pronouns should also handle morphological, as well as distributional, semantic, prosodic, and phonological contrasts. The rich net of asymmetries distinguishing the three classes cuts across all these components: morphology (clitic ≤ weak ≤ strong), distribution (clitic and weak pronouns must be in a derived position, contrary to strong ones; clitics are heads at S-structure, contrary to weak and strong pronouns, etc.), semantics (clitic and weak pronouns lack range, strong pronouns always have one), prosody (clitic and weak pronouns restructure prosodically, contrary to strong ones; weak and strong pronouns may have word-accent, contrary to clitics) and phonology (liaison and contraction rules are restricted to clitic and weak elements).

Surprisingly, while these asymmetries seem to be absolute universal, none of the interpretive asymmetry is systematic: It is not the case that there is a strict covariation between being of one class, and having one type of semantic / phonetic interpretation. The interpretational characteristics are asymmetric but overlapping: The three classes are purely abstract (both deficient and strong elements can for instance refer to human entities and to prominent discourse referents, although an asymmetry holds w.r.t. non-human entities and non-prominent referents).

10.1.4. Finally, a theory of clitic elements should be applicable across lexical classes: Just as personal pronouns may be either clitic, weak or strong, all of adverbs, adjectives, quantifiers, *wh*-pronouns, nouns, etc. are found in all three formats. Furthermore, the characteristics of clitic, weak and strong elements are largely *identical across categories*. A clitic pronoun differs from a strong pronoun *in the same way* as a clitic adverb differs from a strong adverb.

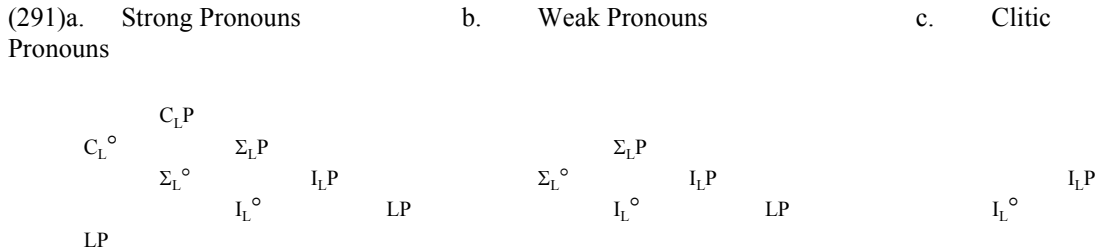
10.2. Summary

10.2.1. The morphological asymmetry between the three classes (clitic ≤ weak ≤ strong), together with the *Principle and Parameters* framework as it stands, indicates a simple analysis complying with all the above prerequisites. Since deficient elements are systematically morphologically reduced w.r.t. the strong elements, and since morphemes are syntactic terminals, deficient elements realise less syntactic structure than strong elements. This is particularly clear in transparent morphology, where one class is a morphological subset of the other.

10.2.2. Based on surface morphological forms (which are taken as indicators of the underlying trigger and not as actual triggers), the missing structure is systematically identified as a high functional morpheme: While strong pronouns are full nominal projections, weak pronouns lack the highest functional layer, and clitic pronouns further lack both of the two highest functional layers.

The uniformity of these layers across classes has then led to the hypothesis that there is one and only one format for all syntactic structure, across languages, constructions and lexical items. Deviation from this basic format, an extremely rare fact, leads to *deficiency*, triggering strong consequences for the deficient element.

Based on the nature of the interpretive properties involved, and on the most widely accepted labelling, that attributed to verbal (extended) projections, the labels adopted are (where IP is a cover term for a set of functional projections, and L refers to any lexical category):



From this, most aspects of deficiency directly follow: Morphological reduction is a direct reflex of lack of structure, impossibility of modification follows from the observation that those modifiers that can modify strong but not deficient elements only modify full CPs, the choice preference follows from the diverse structures in combination with a general principle *Minimise α* , the prosodic asymmetries comply with the observation that "major constituents" (i.e. CPs) are treated differently from non-major constituents w.r.t. prosodic processes. Other distributional and semantic asymmetries follow not from the sheer absence of structure, but from the absence of features contained in those structures: case features in C° (and consequently, referential information) and polarity and prosodic features in Σ° .

10.2.3. An attentive observation of the choice preference shows that strong elements are treated as *prior* to deficient elements: A deficient element must be chosen but only if it is associated with the same features as *those which would have been contained in the strong counterpart*.

This primacy, together with the whole general theory of deficiency, may be implemented through three general assumptions, two of which are hardly more than expressions of what is generally assumed:

- | | |
|---|------------------------|
| (293)a. Minimise α | (Economy Principle) |
| b. Information of level R must be present at R+n | (Projection Principle) |
| c. All entries of the syntactic lexicon realise a fixed array of (underspecified) features, $\alpha_1 \dots \alpha_n$. | |

The identity of all (extended) projections now follows from (294c): Features $\alpha_1 \dots \alpha_n$ invariably project onto what becomes CP, IP, etc. It also follows that only strong pronouns are generable. The (generalised) economy principle then forces to reduce structure as much as possible, α being in this case structure (strictly speaking, *Minimise α* is forced to operate as *Erase α* in this case), thus deriving both the choice asymmetry and the primacy of strong elements.

Finally, the Projection Principle forces recovery of features erased by *Minimise α* . This recovery is possible only through a local relation between the deficient element and an adequate head at S-structure (assuming there to be no displacement at PF), thus deriving the distributional asymmetries.

10.2.4. The relevant set of properties now all follow, independently from the nature of the lexical head (across verbs, nouns, adjectives, etc.), with the desired morphological, semantic, prosodic and syntactic consequences:

(295)a. From the sheer absence of the highest projections in deficient elements (clitic and weak), it follows that:

- the more an element is deficient, the more it tends to be morphologically reduced
- deficient elements cannot be modified by modifiers of CPs
- deficient elements are not "major constituents", a central notion in prosody

- the most deficient element possible is preferred. (by *Minimise α*)
- b. From the absence of C-features in deficient elements, it follows that:
 - deficient elements never have their own range (and are thus always either expletive or coreferent)
 - deficient elements must be displaced to recover missing (case-)features. (Projection Principle)
- c. From the absence of Σ -features in clitic elements, it follows that:
 - clitic elements do not have word-accent
 - clitic-elements must be displaced to recover missing (prosodic) features. To not destroy the effect of the recovery of the C-feature, a X^0 -chain must be created. (Projection Principle)

10.3. Conclusion

The present investigation, we hope, illustrates the interplay of abstract theoretical constructs and empirical generalisations. The first part seeks to establish what is to be explained by a theory of simple oppositions between clitic and strong pronouns, arriving at several new conclusions. Most prominently, that the relevant opposition is among three distinct classes: clitic, weak and strong; but also that these classes are separated by a regular range of semantic (referential) oppositions. The global picture then becomes uniform: Clitic pronouns are deficient w.r.t weak pronouns which are in turn deficient w.r.t. strong pronouns, both distributionally, morphologically, semantically and prosodically.

This generalisation, (150), then indicates a simple abstract primitive: *Structural Deficiency*. Some pronouns are deficient in that they have a deficient syntactic structure. For the first time, to our knowledge, this opens a (tentative) road towards a unified derivation of the whole range of syntactic, morphological, semantic and prosodic effects involved, but also of the similar properties of pronominal, adverbial, adjectival, etc. clitic, weak and strong elements.

The postulation of diverse structures then entails a set of constraints which regulate the generation and derivation of syntactic structure, further constraining the general model of grammar upon which it is based. Choice patterns among distinct classes of pronouns indicate that only full, i.e. strong, structures are generable. The existence of deficient structure must then be attributed to a reduction process in syntax, traced down to a general *Minimise Structure* principle, subsumed under a global economy principle *Minimise α* (cf. Chomsky's (1993) economy guidelines). Finally, this entails a split lexicon, with post-syntactic access to morpho-phonological information (cf. Halle & Marantz (1993), Jackendoff (1994)).

The "theory of clitics" thus developed is a general theory of arguments and adjuncts, and of their syntactic structure, thereby defining a novel set of central questions, which we hope to be productive avenues of research.

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