

Economy, Agreement and the Representation of Null Arguments¹

Margaret Speas

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1. Introduction

This paper takes a new look at the way in which null arguments are licensed. I propose that there is no licensing condition per se, and hence no "pro-drop" parameter per se. Rather, null arguments occur wherever general principles of economy permit them to occur. I will argue that this proposal captures the crosslinguistic distribution of null arguments more accurately than theories with Licensing and Identification conditions, it encodes the longstanding intuition that there is a relationship between "rich" agreement and the licensing of null arguments, which has been abandoned in Licensing and Identification theories, and it lends insight into how Economy principles work to constrain phrase structures which are generated in the absence of any specific X-Bar component, as in the theories of Speas(1990), Kayne(1994) and Chomsky(1994).

I will begin by laying the proposal out in general terms, and will follow this with a discussion of the implications of the proposal for the projection of phrase structures. In Section 4, I will show how this proposal offers both empirical and theoretical advantages over theories that have Licensing and Identification Conditions. In Section 5, I will address a question which is central to the enterprise of explaining the distribution of null arguments, namely the problem of isolating a specific morphological correlate to "rich" agreement. I will deal with some potential counterexamples to the proposal in Section 6.

For the most part, I will be focussing on null subjects, since most of the so-called pro-drop languages that have been extensively studied have Subject agreement but no overt Object agreement. In Section 7, I will discuss how my theory may be extended to null objects. In general, I will use the term 'null argument' when I mean to make a general point, although the illustrations prior to the final section will all pertain to null subjects.

2. Projecting Agreement and its Specifier

Early generative theories of pro-drop, such as that of Taraldsen(1978), encoded the intuition that there is a relationship between "rich" agreement and the licensing of null arguments. This intuition has been notoriously difficult to justify empirically, yet, as I will argue in detail in Section 4, there are compelling reasons to continue to believe that such a relationship exists. As a starting point, then, I will be assuming that there exist two types of agreement, for which I will adopt Chomsky's(1989) terms, 'strong' and 'weak', although I will diverge from Chomsky in my characterization of the two types. I will be further assuming that there is a relationship between strong agreement and the possibility of having a null subject, and I will assume that the generalization in 0 is an accurate description of the relationship between strong agreement and null subjects

crosslinguistically. Once I have presented my proposal in general terms, I will examine these assumptions in detail, will argue that they are fundamentally correct, but will propose modifications where they are not correct.

(1) Jaeggli and Safir's Generalization:

Null subjects occur in the context of either very rich agreement or no agreement at all. (Jaeggli and Safir 1989)

What Jaeggli and Safir observed is that null subjects are found in languages like Italian, Spanish, Navajo and Hindi², where the agreement morphology seems in some intuitive sense to be sufficient without the overt subject, and they are also found in languages like Japanese, Chinese and Thai, which have no person/number agreement at all. The condition under which null subjects are excluded is that found in languages like English: there is some residual agreement, but it is not "rich". The theory that I will propose will explain Jaeggli and Safir's generalization.

As a preliminary to the proposal, consider the syntactic status of the morpheme that expresses agreement. As has been pointed out by various people, including Kinyalolo(1991), Carstens (1991), Bouchard (1992), Fukui(1993) and Kayne (1994), agreement, unlike other morphemes like Tense or Aspect, does not receive an independent interpretation, and hence it ought to be absent at LF. The question, then, is whether it occupies an independent syntactic head prior to LF.

Belletti(1990) claims that in Italian inflectional affixes do occupy Functional head positions, and the verb moves in order to support the affix(es). English lacks verb movement (at least, verb movement to AGRS), so perhaps inflectional affixes are not base-generated in Functional head positions in English. In Chomsky (1989) it was suggested that English has affix lowering rather than verb raising, but more recent work dispenses with lowering in favor of the view that the actual affix is base-generated on the verbal stem. Chomsky doesn't discuss whether languages like Italian also have verbs which are base-generated with inflectional affixes attached or whether instead Italian differs from English in this regard.

The view that I will adopt here is one proposed by Rohrbacher(1992, 1993), who claims that in languages which have strong agreement, each agreement morpheme has its own lexical entry, while in languages that have weak agreement, the morphemes do not have independent lexical entries. Rather, verbs in weak agreement languages are listed in the lexicon in verbal paradigms, and hence Agreement has no independent lexical entry in such languages.

(2) Rohrbacher's Generalization:

Strong morphemes have individual lexical entries.

Weak morphemes do not have individual lexical entries.

Rohrbacher points out that this typological difference correlates in an interesting way with the longstanding debate in the field of morphology about the nature of inflectional morphemes. According to one approach, inflectional morphemes are listed

individually in the lexicon and affixed to their host by syntax-like principles (Lieber 1992, Jensen and Strong-Jensen 1984, LaPointe 1980, Fabb 1984). According to the other approach, (Anderson 1992, Beard 1991), inflectional paradigms are created by special rules of morphology, and are mapped onto abstractly specified syntactic structures. Rohrbacher points out that each approach runs into problems, but that such problems can be resolved if we take the view that both theories are correct. In particular, languages with strong morphology are languages in which each inflectional affix has its own individual listing in the lexicon.³ Since these affixes have lexical entries, they are available to the computational component and hence may head their own projections. Languages with weak morphology are languages in which inflectional affixes do not have independent lexical entries. Rather, they are listed in the Lexicon in paradigms and are inserted into syntactic representations already attached to their host. A large portion of Rohrbacher's work is devoted to trying to determine what Morphological properties correlate with the existence of an individual lexical entry for a given affix. I will address this issue in Section 5.

In languages with strong agreement, then, a morpheme AGR heads the AGR projection. In languages with weak agreement, the AGR morphology is just part of an inflectional paradigm.

- | | | | | | |
|-------|-------------|------|----|-----------|------|
| (3)a. | strong AGR: | | b. | weak AGR: | |
| | AGP | | | AGP | |
| DP | | AGR' | | | AGR' |
| | AGR | | | AGR | |
| | -af | VP | | | VP |
| | | V | | | V+af |

The descriptive generalization that emerges is the following:

- (4)
- a. A language has null subjects if AGR is base generated with a morpheme in it.
 - b. A language cannot have null subjects if AGR is base-generated on the Verb.
 - c. A language has null subjects if it has no AGR.

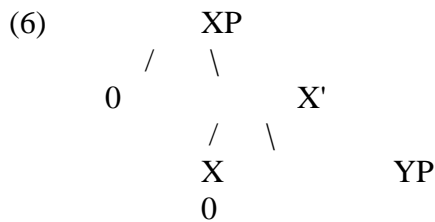
Previous works that have noticed a generalization resembling this one have accounted for it by claiming that an occupied AGR is rich/strong enough to license pro in subject position. As I will discuss in Section 4, such theories do not explain the fact that null subjects occur in languages which lack agreement altogether.

I claim instead that the generalizations in 0 follow directly from a principle of Economy which can be stated as in 0.

- (5) Project XP only if XP has content.

In strong AGR languages, the affix is base-generated in the AGR head position, and so AGRP has content. However, in weak AGR languages, the affix is base-generated on the verb, and so something else must give content to the AGRP projection. Therefore, either a pleonastic must be inserted in Spec, AGRP, or an NP must move to that position. If the SPEC,AGRP remains empty in a weak AGR language, AGRP cannot be projected without a violation of the Economy principles.

I have expressed the Economy principle in 0 as a sub-case of the general principles of Economy of Derivation. At this point, we might also express the relevant constraint as a constraint on representation, expressed perhaps as in 0, prohibiting a representation in which both the head and the specifier of XP are radically empty. A proposal along these lines, involving a PF Licensing Condition, has been made by Tait and Cann(1990). In Section 3, I will show why I believe that the relevant constraint must be a constraint on derivation, not representation, and hence applicable prior to Spellout rather than at PF. For now it is sufficient to note that the relevant Economy principle has the effect of making representations like 0 impossible.



Before we proceed with the analysis of null argument licensing, it remains to specify what counts as "content" for the purposes of the Economy principles. The intuition that should be captured is that if you take YP in 0 and add nothing to it, you cannot treat it as though there were a newly projected phrase. You must add something with content in order to project a new phrase. Since all structures must be interpreted at both of the interface levels, PF and LF, I take the relevant notion of content to be as follows:

- (7) A node X has content if and only if X dominates a distinct phonological matrix or a distinct semantic matrix.

If XP in 0 dominates no phonological material except that which is in the complement YP, then XP dominates no distinct phonological matrix. Similarly, if XP dominates no semantic material except that which is in the complement YP, then XP dominates no distinct semantic matrix. Note that traces will in effect count as contentful, since they mark a place which has at some point in the derivation been filled by a contentful item.

This view of how economy principles constrain the projection of structures disallows the projection of structure prior to spellout which will not be filled until after spellout, since projection takes place only in the presence of some distinct content.

Thus, in a language in which AGR is base-generated on the verb, there is no head with content available to head the AGRP. The only way that AGRP can be projected without violating the economy principles is if AGRP has a specifier with content before spellout. Therefore, either an NP must move to spec,IP, or a pleonastic must be inserted.

If AGR is base generated with a morpheme in it, AGR has content and hence AGRP can be projected. There is no necessity for the specifier of AGR to be filled. The null subject, which I assume is base-generated in a VP internal position, may stay in its VP-internal position, and the specifier of AGRP remains truly empty.

To summarize so far, a language with weak AGR must have a filled Spec,AGRP prior to spellout, while a language with strong AGR may leave Spec,AGRP empty. Before I go on to discuss languages that lack AGR altogether, let us clarify the relationship between spec,AGRP and the VP-internal subject position. In a language like Italian, pro remains in its VP-internal position until spellout. I assume that at LF, pro moves to the spec of AGRP in order to satisfy the requirement that AGR be checked in a spec-head relation. In a language like English, spec,AGRP must be filled prior to

spellout. This proposal implies that in such a language, *pro* is possible in the spec of VP in principle, but that some overt element must nonetheless occupy the spec of AGRP. Hence, we must be sure we can rule out sentences which have a null subject in Spec,VP and a pleonastic inserted into Spec,AGRP. That is, we must rule out sentences like 0.

(8) *There [*pro* saw Mary]

The problem posed by 0 is a general one that arises in any theory in which Spec,IP is disassociated from Spec,VP: why can't a pleonastic cooccur with *pro*? I suggest that this is due to the fact that *pro* does not have its own phi features, and it must receive phi features in a spec, head relation with AGR at LF. I follow Chomsky(1989) is assuming that at LF, the associate of an expletive adjoins to the expletive. If this associate is an NP with its own phi features, those features may percolate to the dominating node, and thus are in a spec-head relation with AGR. If the associate is *pro*, there are no features to percolate, and *pro* is only adjoined to the spec of AGR, it is not itself the spec, hence *pro* is unable to receive features and the derivation crashes at LF.

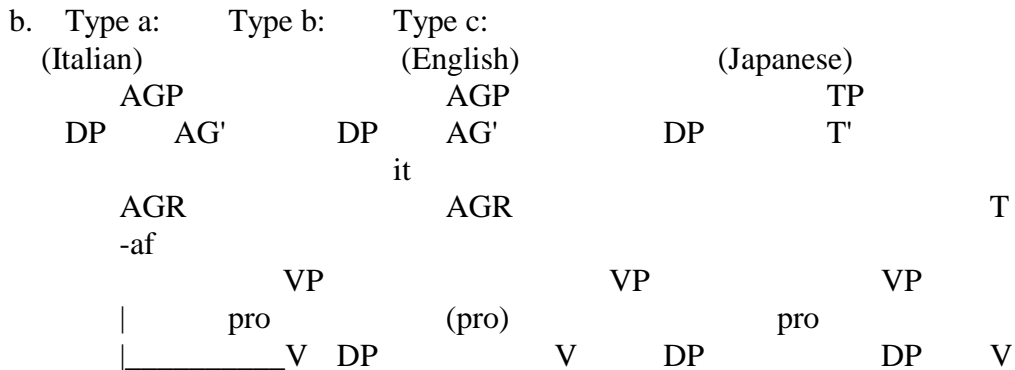
(9)a.	AGRP	b.*	AGRP
	DP[3pl]	VP	DP VP
DP	DP[3pl]	arrived DP	pro saw Mary
there	three students	there	

Thus, *pro* is permitted in principle within VP in a language like English, but sentences like 0 are ruled out by independent principles. The null subject parameter has to do specifically with a requirement on the spec of AGRP.

Turning now to languages that lack AGR altogether, my claim is that there is no need for an AGR projection at any level. Hence, the requirements on licensing that projection never arise. Thus, I am suggesting that the AGRP projection is necessary only in languages which have some sort of agreement, no matter how residual. I would maintain, with Tateishi (1989), that languages like Japanese and Chinese do have functional heads such as TENSE and ASPECT, but they lack the head AGR. My claim is thus similar to that of Kuroda (1988), who claims that some languages lack the agreement relation, but I believe that what is lacking is the AGR head, not the agreement relation. I adopt the theory of Chomsky (1992) whereby structural Case must be represented at LF in terms of a spec,head relation in which the spec and head are coindexed and hence abstractly agree. However, I take the position that in languages which have AGR features, the relevant head is AGR, while in languages which lack AGR, the relevant head may be TENSE, ASPECT, or perhaps the verb. (cf. Carstens and Kinyalolo (1989), who outline a theory of agreement in which what is necessary is a spec,head relation, but this need not involve a head labeled AGR.)

In Japanese, then, there is no AGR head at all. In a language like Japanese, the subject may be null because nothing forces movement into the spec of AGR, since there is no projection to be made legitimate. The reason that an AGRP projection is necessary in languages with residual agreement is that AGR features, if they exist in a language, must be checked in a Spec,head relation by LF. Since Spellout is the point at which the derivation has no further access to the Lexicon, no new heads can be added to a phrase marker after spellout. Thus, if AGR is to be needed at LF, the AGRP projection must exist prior to spellout. Therefore, in a language which has AGR features, there must be an AGR projection with content before spellout⁴.

- (10)a. Type a: Morpheme heads AGRP, spec may be empty
Type b: Morpheme is attached to V, spec must be filled
Type c: No AGR Projection



To summarize so far, I have proposed that the contexts in which null subjects are possible follow from an independently needed principle of economy of projection, along with a parameter regarding whether AGR affixes have independent lexical entries. A maximal projection must have content in order to be projected, and so null subjects are possible either in languages in which the head of AGRP has content, or in languages in which there is no necessity to project AGRP at all.

One very nice consequence of the view that AGRP projects only if it has content is that the fact that language like English must have overt subjects need not be stated as a substantive principle. That is, the effects of the Extended Projection principle now follow naturally: languages with weak agreement must have a specifier of AGRP which has content, hence they will always have a surface subject, even if no theta role is assigned to an external argument. We do not have to stipulate the Extended Projection Principle in any form.⁵

A second consequence of the proposal outlined here is that there is now no need for a special licensing condition on *pro*. The languages that allow *pro* will be those which can fulfill the economy principles without having a filled spec,AGRP. As I will discuss in more detail in Section 4, the licensing condition on *pro* runs into empirical difficulties when faced with languages like Japanese which have *pro* but lack agreement entirely, and such a condition has the conceptual problem that it requires syntactic conditions that refer to the phonological nature of the licensee. In the theory I have proposed, both of these problems are solved. Languages like Japanese can have *pro* because no principles require the projection of a legitimate AGR projection, and so nothing will require an overt specifier. The apparently special properties of null arguments follow from the fact that they lack independent content, and hence cannot suffice to license the projection of an AGR phrase. Thus, their status as phonetically null is incorporated into the theory without special stipulation.

3. Implications for the Theory of Phrase Structure Projection

In the proposal outlined above, general principles of Economy constrain the projection of syntactic phrases. In this Section, I will consider in more detail the means by which

phrases are projected and the way in which the Economy principles constrain phrase structures. I will focus on two central implications of the proposal: first, the status of AGR as a head which may either lack content or be altogether missing and second, the status of the operative Economy principle as a principle of derivation.

3.1 AGR as a Contentless Category

Central to my theory is the idea that in a language like English, the head of SAGRP has no content prior to Spellout. Further, I am assuming, following Speas(1990), Hoekstra(1991), Kayne(1994) and Chomsky(1994) that X-bar Theory is not a primitive component of the Grammar, but is rather an artifact of more general principles which constrain the output of free phrase-building. We need to make sure, then, that the general principles we are assuming are capable of projecting phrases whose specifiers have content but whose heads do not. First, I will justify the assumption that AGR has no content in languages like English, and will elaborate on what sort of category it is.

As mentioned above, various people have observed that AGR lacks independent semantic content. This view contrasts with the one in Chomsky(1994), where AGR is considered to contain a bundle of features which are matched with a raised verb and with the NP in specifier position.

The assumption that AGR lacks content and that principles of economy constrain projections allows us to eliminate certain redundancies in Chomsky's theory. In Chomsky's Checking Theory, the features involved in agreement (N Features) appear in three places: on the affixes themselves (which are attached to the verb in English-type languages) in an unpronounced lexical entry AGR, which is the head of the AGR phrase, and on the NP to be agreed with. The unpronounced features of AGR must eventually be matched with both the NP and the verbal affix, and then they disappear. Chomsky supposes that if these unpronounced features do not disappear by the interface level, the derivation crashes because there are features with no interpretation. "Strong" features must be gone by PF, and "Weak" features must be gone by LF. In the theory presented here, these features appear only on the verbal affix (which may either be on the verb or may project its own phrase) and on the NP to be agreed with.

Beyond this possibly minor redundancy in Chomsky's system, there are three more serious problems with this version of the checking theory that lead me to reject the hypothesis that AGR is an unpronounced bundle of features. First, why should unpronounced features have to disappear by PF? PF allows other null feature bundles, so why not unpronounced features in AGR? Second, there is something amiss in the fact that the features of AGR never get to reach an interface level. This requires that we allow the Grammar to contain lexical entries whose content is never visible at either interface level. They are both unpronounced and uninterpreted. Third, stating the distinction between strong and weak agreement in terms of whether the features must disappear before PF reduces the distinction between strong and weak agreement to a mere

stipulation, bearing no correlation to the type of morphology, and hence leaving Jaeggli and Safir's generalization unexplained.

For these reasons, I reject the idea that the lexicon contains bundles of unpronounced features of the category AGR. Rather, I assume that phi features are semantic features associated with particular morphemes, either pronouns/NPs, or affixes. These features must be checked by being in a spec/head relation with an NP bearing such features by LF.

This means that in a language in which inflectional morphemes are base-generated on the verb, AGR is "truly empty". In fact, there does not seem to be any compelling reason to consider the relevant head to be specifically labelled as "AGR". Rather, as Kayne(1994) suggests, "In cases where movement is called for, but where no contentful head is available, the moved phrase must become the specifier of a head lacking intrinsic content.

It may be that this is what one means by Agr^o..."(1994:30)

3.2 On the Derivation of Phrase Markers

It turns out that making the assumption that AGR has no content in an English-type language allows us to restrict the possible ways in which phrases in general can be projected, resolving an open question in the systems of both Chomsky and Kayne. The open question has to do with whether phrases are projected one node at a time, or whether larger pieces of a phrase marker can be created by a single operation. Chomsky(1994) claims that phrase markers are built up by the operation MERGE, which takes as input two phrase markers and yields a new phrase marker, whereas in Kayne's(1994) system, entire phrases are projected freely, subject to the constraints such as the Linear Correspondence Axiom.⁶ Below I will show that only the system in which entire phrases project is viable, once we adopt the view that AGR may be contentless. This means that the Economy condition relevant to my proposal must be a condition on derivation rather than a condition on representation.

In the case of a head with no intrinsic content, MERGE would have to take this head (assuming that the Lexicon can include dummy heads) plus its complement and yield a new phrase marker. This is in violation of the principle of economy that we have suggested. In a system like Chomsky's, either there can be no contentless heads, or the principles of economy apply to representations at spellout but not to derivations. Above I have defended the view that AGR is a contentless head. Can we adopt the position that the economy conditions apply to representations at spellout rather than to derivations?

This view would predict that in cases where AGR lacks content initially but then verb-movement has provided the head of AGR with content by Spellout, null subjects should be permitted. As mentioned briefly above, my system allows for languages which have the AGR affixes base-generated on the verb, but then have verb movement for some independent reason. It turns out that such languages do not allow null subjects. French is the most straightforward example - it is standardly taken to have weak agreement, but it has verb movement. However, it does not have null subjects under standard accounts⁷. Another example is Auxiliaries in English. I assume that these are base-generated in

some verbal projection, but move to AGR prior to spellout. Thus, verb movement by itself is not sufficient to provide content to AGR for the purposes of the principles of economy under consideration here. This means that the relevant principle must apply prior to verb movement, that is, to the derivation. When verb movement takes place, there must be a contentless head for it to adjoin to, otherwise the conditions for checking of agreement features will not be satisfied. Thus, we must reject Chomsky's proposal that all phrase markers are created by the binary operation MERGE.

Instead, I advocate a view that is more in keeping with the proposal of Kayne(1994), Hoekstra(1991) or Speas(1990), where phrase markers are freely constructed, subject to constraints, whose effects include that phrase markers will be only binary branching. In Kayne's work, this effect is a byproduct of the Linear Correspondence axiom, and in Speas' and Hoekstra's work it is a byproduct of the fact that other relations of grammar are strictly local and biunique. My view, then, is that the phrase-building operation is not MERGE, but the operation PROJECT ALPHA (Speas 1990), which says nothing more than that any head may project any number of dominating nodes. Minimal and maximal projections are defined on specific representations, so X-Bar theory is eliminated in that the labels on nodes and the internal structure of the categories follows from the interaction of other principles. However, the fact that syntactic phrases exist independent of the items within them remains as a primitive.⁸

Under this view, an entire phrase can be projected, but only if either a head or a specifier with content is available. In principle, Project Alpha applies freely. However, in practice, it is constrained by principles of Economy of Derivation.⁹

A proposal with many similarities to this one has been made by Tait and Cann(1990), who give an account of null subjects in Italian using the following constraint on PF representations:

(11)PF-Licensing Principle (Tait and Cann 1990)

Lexical alpha must be PF-licensed

Alpha is PF licensed iff

- a. Alpha is headed by Beta which contains phonological material, or
- b. Alpha, or the head of alpha, is bound by a PF-licensed position

This is similar to my proposal in that a phrase is licensed iff it is headed by something with content (for Tait and Cann, phonological content) or bound, where spec-head indexing counts as binding of the head of alpha. It differs from my proposal primarily in being a condition on PF representation rather than on derivation. Above I mentioned the problem of languages in which fully-inflected verbs move to AGR prior to spellout (eg., French) as a reason for thinking that the condition should be derivational. There are a few other reasons.

One problem with Tait and Cann's condition is that it is not clear how PRO can be licensed, particularly when PRO has no controller.¹⁰ In my theory, there are several possible approaches to PRO. Perhaps the most obvious is to say that infinitives have no

AGR at all. PRO would then occupy either the specifier of VP (PredP) or possibly the specifier of the TP whose head is occupied by *to*. Related to this is the problem of empty operators. These are empty categories which may occupy the specifier of a CP that does not have a phonetically realized head, and the relationship between an empty operator and its identifying antecedent is generally taken not to involve binding per se. In my theory, the operator would be a category with semantic content, as it has scope-bearing features. Thus a phrase containing it plus a null head could be projected. For these reasons, I consider the condition that constrains phrases structures containing empty elements to be a condition on derivation rather than a condition on representation.¹¹

4. Empirical and Theoretical Challenges to Licensing and Identification Theories of Null Arguments

In this section, I will point out some problems with current theories of null arguments. These problems fall into three types: First, there is a relationship between agreement and the licensing of null arguments which is not captured in current theories. Second, the Licensing Condition relies on an arbitrary designation of what will be a Licensing Head in a given language. Third, the licensing and identification conditions both call for a relationship between levels of the Grammar that I will argue is too strong.

Before proceeding to discuss these issues, we should address a much more fundamental question: on what basis have we decided that the null argument parameter is in fact anchored in some deeper principle of the Grammar? The alternative would be to say that children simply learn through positive evidence which arguments may be null. Why do we not say that the children of Italian or Japanese speakers hear sentences lacking Subjects, and hence know that subjects may fail to be pronounced, while children of English speakers do not hear such sentences, and hence know that subjects must be pronounced?

First of all, such a simple picture cannot be right because English speaking children do in fact hear sentences lacking Subjects: imperatives, non-finite clauses, and matrix sentences in the 'diary-drop' register all may lack Subjects in English. Somehow, the child must learn to differentiate these contexts from those in which Subjects may not be dropped, and hence at the very least the child is learning a rule more complex than the simple picture outlined above would suggest.

Second, the evidence from language acquisition is not consistent with the hypothesis that children learn whether their language omits Subjects simply through positive evidence. Such a hypothesis would require that we assume that children start out by assuming that Subjects cannot be dropped, until they have heard some evidence containing omitted Subjects. But child language universally allows Subjects to be null, indicating that children begin by assuming that Subjects can always be omitted, and then must learn to stop omitting Subjects if they are acquiring a language like English.

Finally, the possibility of omitting the Subject of a finite clause does not exist as an

isolated property in those languages which allow it. Rather, the existence of this property implies various other properties in the language, such as the possibility of postposing the subject, the lack of overt pleonastics and the lack of that-t effects. This clustering of properties is compelling evidence that the relevant parameter is linked to a principle of UG, and is not a simple surface phenomenon.

4.1 Agreement and Null Argument Licensing

Early accounts of the conditions on null arguments, such as Taraldsen(1978), drew a direct relationship between "rich" agreement and the licensing of null subjects. In more recent work, it has become clear that the role of rich agreement is less direct. On the one hand, there exist languages like German, which seems to have relatively rich agreement yet does not allow referential null subjects. On the other hand, there are languages like Japanese, which lack person and number agreement altogether, yet allow referential null subjects. Thus, there is not a direct implicational relationship between rich agreement and the licensing of null subjects.

To capture the fact that Agreement seems to be correlated with the presence of null arguments yet is not a necessary or sufficient condition on them, Rizzi (1986) proposed the following principles, in which agreement participates in the identification of pro, but not in the licensing of pro:

- (12)a. pro is formally licensed through Case assignment by a designated head.
- b. pro has the grammatical specification of the features of its licensing head coindexed with it.

The licensing class of heads in a given language may include INFL, and rich features of INFL will be shared by pro through the coindexation specified in 0b. However heads other than rich INFL can also serve as licensers, as long as there is a way for pro to get phi features. For example, Rizzi argued that Italian has pro in object position, and suggested that there is an independent rule that can assign arb interpretation to a direct argument, and that this rule applies in the syntax in Italian but only in the Lexicon in English. Thus, null objects can get (arb) features in Italian but this is not possible in English, so pro would wind up featureless and hence is not permitted. Under Rizzi's conditions in 0 rich agreement is not directly correlated with the licensing of pro. Pro is licensed by a designated head, and agreement is implicated only in the identification condition. Given the existence of languages like Japanese, we might consider divorcing AGR entirely from the theory of null arguments. Yet, there are some compelling reasons to believe that there is in fact a relationship between agreement and the licensing of null arguments, and this relationship seriously weakens the plausibility of theories in which the licensing of pro is not linked to any property of agreement.

The first of these reasons is the intriguing generalization of Jaeggli and Safir(1989), mentioned above and repeated here.¹²

(13) Jaeggli and Safir's Generalization:

Null subjects occur in the context of either very rich agreement or no agreement at all.

Jaeggli and Safir observed that null subjects are in general found in languages like Italian, Spanish, Navajo and Hindi, where the agreement morphology seems in some intuitive sense to be sufficient without the overt subject, and they are also found in languages like Japanese, Chinese and Thai, which have no person/number agreement at all.¹³ The condition under which null subjects are excluded is that found in languages like English: there is some residual agreement, but it is not "rich".

Jaeggli and Safir's generalization makes it apparent that null subjects are unlicensed in impoverished agreement languages. A Licensing Condition such as Rizzi's does not predict this correlation, since in principle any head could be a designated Licensing Head.

Further, we cannot appeal to the identification condition to explain this generalization, because languages with no agreement at all have alternative ways of identifying null arguments, which for some reason languages with weak agreement are not permitted to use. Thus, there is a relation between agreement and null argument licensing which is not captured in current theories of the distribution of null arguments.¹⁴

The second reason to believe that there is a relation between agreement and null argument licensing has to do with a correlation between the two which is found in language acquisition. It is well known that children set the null argument parameter (in whatever form it may take) at around the time that they acquire inflection. (see Hyams 1986, Hyams and Jaeggli 1988, Deprez and Pierce 1993, Lebeaux 1988) Roeper and Rohrbacher (1993, forthcoming) have found that in fact English-speaking children who have not yet set the parameter systematically allow null subjects only in the absence of agreement. Their sentences which lack subjects also lack agreement, and those which have agreement never have subjects. Thus, we find examples like 0a and b. but never examples like 0c.

(14)a. Where go?

b. Where dis goes?

c. *Where goes?

Roeper and Rohrbacher's data cannot be explained in terms of an identification condition, because children have some means of identifying the null subject in 0a, so they should be able to use that same means to identify a null subject in a sentence like 0c. Instead, these data indicate that null arguments fail to be licensed in the presence of weak agreement, yet are licensed when there is no agreement. See Roeper and Rohrbacher (forthcoming) for extensive data and further discussion.

This problem of the correlation between agreement and null argument licensing becomes magnified when we consider how it bears on the nature of the Extended Projection Principle. The EPP states that all clauses must have a subject, and a question has always arisen as to whether the EPP holds in languages which allow null subjects.

When there is no thematic external argument, various researchers have pointed out that it would impose redundancy to insert a null pleonastic, which receives no interpretation at LF, for the sole purpose of satisfying the EPP. Some, such as Safir(1985) and Borer(1986) have proposed that (their formulation of) the EPP holds only in languages which do not allow null arguments. Safir, for example, suggests that Nominative Case must be phonetically realized in non-null-subject languages, but not in null subject languages. But now it is a mystery why this realization condition is correlated with impoverished agreement. Why is it that Nominative Case need not be phonetically realized in languages with either rich agreement or no agreement at all? Why does the EPP hold only in languages with impoverished agreement? The relationship between the EPP in such theories is still in need of explanation.

4.2 Theoretical Problems with the Licensing Condition

There are further problem with approach that specifies a licensing condition for null arguments. The most obvious of these is that the class of "designated heads" which license pro is completely arbitrary. The licensing class of heads in a given language may include INFL, and strong features of INFL will be shared by pro through the coindexation specified in the identification condition. However heads other than rich INFL can also serve as licensers, as long as there is a way for pro to get phi features. For example, Rizzi argues that Italian has pro in object position, licensed by the designated verbal head, which assigns the null object an arbitrary interpretation. Because of this arbitrariness, it is not clear that saying that a child learns which are the classes of designated heads is any theoretical improvement over saying that a child learn the class of positions that can be null.

A further problem with the licensing condition approach is that this condition has two unusual properties, both having to do with the special phonological status of pro. First, the condition necessitates that the Grammar allow some heads to be designated as licensers of a category with particular phonological properties (namely, the property of being unpronounced). There are no equivalent designations in other components of syntax involving other phonological properties. For example, there do not exist specific heads that license stressed NPs, specific heads that assign theta roles only to overt NPs, or specific heads that subcategorize for NPs with nasal consonants in them. Second, it necessitates that a particular lexical entry, pro, is subject to a special requirement in virtue of its phonological status. Such a condition is especially surprising in that the intuitive content of the need for a special requirement on an unpronounced constituent is satisfied by the identification requirement, independent of an additional licensing condition: if a constituent is not pronounced, it must be recoverable. Intuition aside, there are no other lexical items whose phonological properties cause them to be subject to some special syntactic requirement. Even the Case filter, which states that all NPs must bear Case to be visible, applies to any NP chain, and in the view of some (eg. Chomsky 1992) also to

PRO, hence need not include reference to the phonological properties of the NP. The Empty Category Principle actually does not apply to all empty categories, but only to the nonpronominal ones, that is, to traces. Traces occupy positions which were filled at some point in the derivation, and so Economy principles obviously allow the position they occupy to be generated at the time they are filled. Hence, the ECP is not a condition on categories in virtue of their status as phonologically null, but rather on categories in virtue of their status as launching sites for movement. Thus, neither the Case Filter nor the ECP are actually principles which apply to a given entity because it is phonologically unpronounced. If, as is generally assumed, pro is simply a pronoun which lacks phonetic realization, there is no reason to expect its phonetic properties to call for a special licensing requirement.

A theory in which no special licensing condition on null arguments is needed will be more in keeping with the working hypothesis of Principles and Parameters theory, that the modules of Grammar are separate and distinct. The theory that I have outlined here accomplishes this goal.

5. Morphological Properties and Agreement Strength

5.1 Is there a Morphological Correlate to Strong AGR?

In the theory outlined above, I have adopted the view that there are two types of agreement, which we may term strong and weak agreement. I have proposed that strong agreement has an individual lexical entry, while weak agreement is listed in a paradigm and base-generated attached to the verb. A well-known problem in research into the relationship between agreement and null arguments is the difficulty in finding a systematic crosslinguistic correspondence between some particular morphological properties and the syntactic property of being strong enough to license null arguments or rich enough to identify them. The conclusion of most researchers, with which I will concur, is that there is no absolute crosslinguistic morphological correlate of "strong" agreement.

However, whereas other researchers have drawn the further conclusion from this lack of absolute correlation that no property of AGR can be implicated in the licensing of empty categories, I do not draw this conclusion. Rather, I maintain that there is a correlation between weak agreement and the impossibility of leaving the specifier of AGRP null. In other words, if the agreement morphology shows the relevant property (which, I will claim, is the Full Paradigm property of Rohrbacher (1994)), then the individual affixes may have individual lexical entries and hence may project an AGRP with no specifier. However, there can be languages which have the Full Paradigm property but still do not list the affixes individually. What we cannot have is languages which have some agreement but do not have the Full Paradigm property and which allow the specifier of AGRP to be null. Throughout this discussion, it is crucial to keep in mind that my proposal does not contain any specific licensing condition on pro; rather the

possibility of any null specifier follows from general principles of economy of projection. Thus, the lexical idiosyncrasy in my proposal involves whether a given set of morphemes in a language that has a Full Paradigm have independent lexical entries or are instead listed in the lexicon as part of a verbal paradigm. This idiosyncrasy is equivalent to a difference like that between object pronouns in English vs. those in French, where the French pronouns simply have the morphosyntactic property of being clitics, while the English ones have the morphosyntactic property of being independent words.

The first step in this discussion will be to review the first influential attempts to find a morphological correlate of "strong" agreement: Jaeggli and Safir's (1989) Morphological Uniformity Condition. I will claim, following Rohrbacher, that the Morphological Uniformity Condition has clear and fatal counterexamples. I will then introduce Rohrbacher's Full Paradigm condition, and show that it is promising but as it stands it makes undesirable predictions about the correlation between verb movement and pro-drop. Finally, I will argue that Rohrbacher's condition can in fact be taken to be a description of the morphological conditions under which agreement affixes might be given independent lexical entries, as long as we do not consider it to be obligatory that they do so.

5.2 The Morphological Uniformity Condition

In their discussion of the relationship between morphological properties and the licensing of null subjects, Jaeggli and Safir(1989) surveyed agreement paradigms in diverse languages and suggested the following descriptive generalization.

(15) a. The Null Subject Parameter

Null subjects are permitted in all and only languages with morphologically uniform inflectional paradigms.

b. Morphological Uniformity

An inflectional Paradigm P in a language L is morphologically uniform iff P has either only underived inflectional forms or only derived inflectional forms.

Languages like Spanish are morphologically uniform in that each form in the paradigm includes both a stem and an affix. English is not morphologically uniform, since the paradigm includes forms homophonous with the bare stem. Languages like Chinese and Japanese are morphologically uniform in that all verbal forms lack agreement morphology.

This hypothesis is intriguing, since it seems to capture why both Chinese and Italian allow null subjects while English does not. It characterizes "weak agreement" as agreement that does not involve a uniform paradigm, and predicts, as my theory does, that null subjects should be allowed in all languages which do not have weak agreement.

Unfortunately, there are clear empirical problems with Morphological Uniformity. First, we find languages like Swedish, which have uniform paradigms with no apparent agreement morphology, yet do not allow null subjects.

(16) Swedish:

- a. 'throw' present indic.
kasta-r kasta-r
kasta-r kasta-r
kasta-r kasta-r
- b. I dag har det kommit manga linvister hit.
today have there come many linguists here.
- c. Reganade det i gar?
rained it yesterday (Platzack 1987)

Swedish meets Jaeggli and Safir's definition of morphological uniformity in that there is no agreement morphology at all (and this is the case in all tenses), only a suffix marking tense. Jaeggli and Safir's hypothesis predicts that Swedish will behave like Japanese in allowing null subjects. Instead, it behaves like English: null subjects are not allowed.

Actually, if we look at some other aspects of the grammar of Swedish, we find evidence that Swedish is a language that has weak agreement, although Jaeggli and Safir's description of weak (i.e., nonuniform) fails to capture it. Swedish is distinguished from Japanese in having a residue of agreement in at least two different parts of the Grammar. First, Swedish has gender and number agreement between nouns and determiners and adjectives. Second, the past participle, which "functions, in effect, as an adjective" (Aulette 1975:xxvii) shows the same agreement as other adjectives.

(17) Det-Adj-N agreement:

- a. en fin la genhet
a fine flat (common gender)
- b. ett fint museum
a fine museum (neuter gender)
- c. tva museer
two museums

(18) past participles:

- a. Brevit var skrivet.
letter-the was written
'The letter was written'
- b. Breven var skrivna.
letters was written-pl
'The letters were written'

The Swedish facts are a counterexample to Jaeggli and Safir's hypothesis about the relationship between overt morphology and null subjects. However, they seem to support their more general observation that null subjects are impossible in languages with weak agreement.¹⁵

A second counterexample to Jaeggli and Safir's hypothesis is pointed out by Rohrbacher(1994). He shows that there are languages like Brazilian Portuguese, which have uniform paradigms with at least some marking for agreement, yet which also disallow null subjects. In fact, Rohrbacher draws attention to the fact that both European Portuguese and Brazilian Portuguese have uniform paradigms, yet European Portuguese allows null subjects while Brazilian Portuguese does not:

(19) EUROPEAN PORTUGUESE	BRAZILIAN PORTUGUESE
compr-ar 'to sell'	fal-ar 'to speak'
1st compr-ocompr-amos	1st fal-o fal-a
2nd compr-as compr-am	2nd fal-a fal-am
3rd compr-acompr-am	3rd fal-a fal-am

- (20) a. (pro) Vi seu pai quando passei.
 saw-1sg your father when (pro) passed-1sg
 'I saw your father when I passed by'
 (European Portuguese)
- b. *(Eu) vi seu pai quando *(eu) passei.
 I saw-1sg your father when I passed-1sg
 'I saw your father when I passed by'
 (Brazilian Portuguese)
 (from Rohrbacher 1994:262)

Finally, as Rohrbacher points out, problems arise when we try to apply the uniformity criterion to languages that permit null expletives but do not permit null referential subjects. For example, German paradigms are uniform and Yiddish paradigms are not, lacking an affix for the first person singular. Yet both languages allow null pleonastics in some contexts, and in fact the range of null pleonastics allowed in Yiddish seems to be greater than that in German.

- (21) German: arbeiten 'to work'
- | | | |
|---|------------|-----------|
| | sg | pl |
| 1 | arbeit-e | arbeit-en |
| 2 | arbeit-est | arbeit-et |
| 3 | arbeit-et | arbeit-en |
- (22) Yiddish: lib-n 'to love'
- | | | |
|---|--------|------------------------------|
| | sg | pl |
| 1 | lib | lib-n |
| 2 | lib-st | lib-t |
| 3 | lib-t | lib-n (from Rohrbacher 1992) |

- (23) a. *Heute arbeitet. (German)
 today work-3sg
- b. *Leyenen ot di bikher. (Yiddish)
 read-3pl prt those books
 '(They) read those books'

- (24) Null pleonastics in German:
- a. Heute wird getanzt.
 today becomes danced
 'Today there was dancing'

b. Heute ist *(es) klar dass die Frau das Buch gekauft hat.

today is clear that the woman the book bought has
'Today it is clear that the woman has bought the book'

c. Heute regnet *(es).

today rains (adapted from Travis 1984:162)

(25) Null Pleonastics in Yiddish:

a. Ikh meyn az in der krom kumt Q a kind

I think that in the store comes a child

b. Haynt geyt Q a regn.

today goes rain

'Today it's raining'

(Travis 1984:164)

The specifics of my own analysis of these various facts will be discussed further below. For now, we can conclude with Rohrbacher that the Morphological Uniformity Condition cannot be correct.

5.3 The Full Paradigm Condition

In this paper I have adopted the proposal of Rohrbacher that some affixes have independent lexical entries while others are base-generated on their host. Rohrbacher's work was principally concerned with characterizing the morphological trigger for V-to-I movement, and only secondarily concerned with null subjects. However, he concluded that the conditions under which INFL is "strong enough" to trigger V-to-I movement are the same ones as those in which INFL is "strong enough" to license referential null subjects. He proposed that INFL has its own lexical entry, and hence both triggers V-to-I movement and can in principle license null subjects if and only if it has what he calls a Full Paradigm which he defines as follows:

(26) INFL is a referential category with lexically listed affixes in exactly those languages where regular subject-verb agreement minimally distinctively marks all referential INFL-features such that a. and b.:

a. In at least one number and one tense, the person features [1st] and [2nd] are distinctively marked.

b. In at least one person of one tense, the number feature [singular] is distinctively marked. (1994:118)

In this system, it doesn't matter whether every cell in the paradigm has an overt affixes, as long as the marking is distinctive in the way described in 0. A paradigm meeting the description in 0 is what Rohrbacher calls a 'Full Paradigm'. The affixes of such a paradigm each have individual lexical entries. Rohrbacher adopts the theory of Speas(1993) whereby if an AGR affix heads its own projection, then null subjects are licensed. Thus, in Rohrbacher's theory, languages with Full Paradigms have both V-to-I movement and the possibility of null subjects.

Although I adopt Rohrbacher's distinction between lexically projected affixes and affixes which do not have an independent lexical entry, there are two problems with his theory of the morphological correlate to strong agreement. The first problem is that his theory collapses the conditions for licensing null subjects with those for triggering V-to-I movement. The second is that he claims that all languages with a Full Paradigm have individually listed or "referential" agreement affixes.

His prediction regarding the relationship between V-to-I movement and null subjects is that a language should allow null subjects if and only if it has V-to-I movement. Interestingly, I do not know of any languages which allow null subjects yet do not have V-to-I movement.¹⁶ However there do seem to be languages which have V-to-I movement yet do not allow null subjects. I will limit my attention here to the main cases that Rohrbacher discusses: French, which is not normally described as allowing null subjects but which clearly has V-to-I movement, and Yiddish and German, which allow only pleonastics to be null.

French verbal morphology does not meet Rohrbacher's criterion for a Full Paradigm, yet French is the language used by Pollock(1989) to argue for his theory of verb movement. Rohrbacher's suggestion is that although the suffixes on French verbs do not have independent lexical entries, the subject clitics in French are actually AGR morphemes, to which the verb cliticizes. Since these clitics head the AGR projection, the specifier of AGR is null in sentences like 0.

(27) Je parle Anglais. = pro je+parle Anglais

1sg speak English

This suggestion is supported by facts about colloquial French, for which I refer the reader to Rohrbacher's Chapter 5. One problem with this suggestion is that it is now unclear where the affixes on the verb itself come from. French seems to have both independent AGR morphemes and also AGR morphemes on the verb. A more serious problem is that if these clitics are AGR, then it is not clear why the clitic is not obligatory in the third person:¹⁷

(28) Marie parle Anglais.

M speaks English

Thus, it seems to me that French remains as a counterexample to the claim that strong inflectional morphology is the trigger for V-to-I movement. Rather, I would claim that the trigger for verb movement differs from the criteria by which affixes are determined to have lexical entries and hence to project their own phrases. In a language like French, the affixes are base-generated on the verb, and the inflected verb moves to AGR.

The problems with the claim that all languages with a Full Paradigm have lexically listed agreement affixes arises when we look at languages like German and Yiddish, which seem to have strong agreement but allow only (certain) pleonastics to be null. Both German and Yiddish have Referential INFL by Rohrbacher's definition, and so ought to have both V-to-I movement and null subjects.¹⁸ However, in both of these

languages, referential subjects cannot be null, although certain pleonastics may be null, as shown in 0 - 0 above. Because of this contrast between referential and pleonastic subjects, it has often been suggested that German AGR is strong enough to license null subjects, but not rich enough to identify them, and so null subjects are only possible if they need not be identified, i.e., if they are pleonastic. This is the approach that Rohrbacher follows, although he notes some interesting empirical problems with it. However, this sort of solution to the problem posed by German and Yiddish completely begs the question of whether there is a morphological correlate to strong/rich agreement: if the conditions on pro are supposed to be correlated with some morphological property, then how come the agreement in Yiddish and German is not rich enough to identify null subjects?

Furthermore, two additional sets of facts make this explanation insufficient. First, German and Yiddish differ in the contexts in which they allow null pleonastics. Specifically, in German certain constructions which might otherwise have a null pleonastic require an overt pleonastic if no other phrase is filling the specifier of CP; in Yiddish the specifier of IP (AGRP) must be filled, but not the specifier of CP. Therefore, some additional condition must be added over and above the identification condition. We will see below that this additional condition can be stated in terms of the economy of projection principle on which our analysis of null subjects is based, and that when it is so stated, the identification condition becomes unnecessary.

Second, German and Yiddish differ in the range of pleonastics which may be null. In Yiddish, any pleonastic which is not in first position (spec,IP/AGRP) may be null, while in German only pleonastics which are not associated with any type of external argument or quasi-argument may be null. This means that the identification condition would have to be fairly complicated, and ad hoc. I will suggest instead that the facts follow from the nature of default agreement, which is found when the external argument bears no thematic role.

5.4 Null Pleonastics: Against the Identification Condition

5.4.1 Yiddish Null Pleonastics

Yiddish does not allow null referential pronouns. Therefore, in my theory it should be classified as a language with weak AGR, needing a filled specifier in order for the AGR phrase to be projected. This requirement ought to hold whether the subject is referential or not. Interestingly, the facts of Yiddish as described by Diesing(1990) confirm this view, in that null pleonastics can never occupy the specifier of IP. Diesing's claim is that in general the verb in Yiddish moves to INFL (rather than to COMP as in other Germanic languages), and that the specifier of IP may be occupied by either the subject or by a topic. What is interesting from our point of view is that the specifier of IP must be filled.

Null pleonastics may occur only if some other phrase occupies the specifier of IP.

(29) *Haynt leyenen ot di bikher.

- today read-3pl prt those books
 'Today (they) read those books'
- (30) a. Es kumt a kind in krom.
 comes a child in store
 'A child comes into the store'
- b. Ikh meyn az es kumt a kind in der krom.
 I think that comes a child in the store
 'I think that a child comes into the store'
- c. In krom kumt Q a kind
 in store comes a child
- d. Ikh meyn az in der krom kumt Q a kind
 I think that in the store comes a child
- e. Es geyt a regn.
 goes rain
 'It's raining'
- f. Haynt geyt Q a regn.
 today goes rain
 'Today it's raining' (Travis 1984:164)

Thus, following Diesing, the adverb or PP in clause-initial position in 0c, d and f is in the specifier of IP. 0a, b and e would be ungrammatical without the pleonastic because the specifier of IP would be unoccupied. Since Yiddish is a language in which AGR affixes are base-generated on the verb, not having their own lexical entries, the specifier of ARGP must be occupied. Unlike in English, this specifier position is not necessarily an A-position, therefore the occupant need not be the subject.¹⁹

- (31) a. AGRP b. * AGRP
 XP AGR' AGR'
 (haynt/es) AGR ...VP... AGR ...VP...
 DP V' DP V'
 V+agr DP V+agr DP

When the subject is referential and, it must be overt if it is to be the specifier which allows AGRP to be projected. Just as with pleonastic constructions in English, we need to rule out structures in which a null subject occupies the specifier of VP while some other overt element occupies the specifier of AGRP. We can adopt essentially the same analysis that we adopted in Section 2: the subject in spec,VP must raise at LF for Feature Checking. The landing site of this movement is a position adjoined to the XP in the specifier of AGRP. If the raised subject is pro, which lacks its own Phi Features, it will not be possible for Feature checking to take place, since no Phi Features will percolate to the XP which is in the appropriate spec,head relation.

- (32) * AGRP
 XP AGR'

XP	pro	AGR	VP
Haynt/Es		DP	V'
			leyenen ot di bikher

Thus, both Yiddish and English are languages in which agreement affixes are base-generated on the verb. The languages differ in two ways: in Yiddish, the verb must move to AGR in the syntax, and in Yiddish the specifier of AGRP need not be an A-position. Because the specifier need not be an A-position, pleonastics need not be overt if some other phrase occupies this position.

5.4.2 German Null Pleonastics

The standard view of the Verb-second effect in German is that it involves movement of the inflected verb to C, along with movement of some XP to the specifier of CP. Thus, the obligatorily overt pleonastics in sentences like 0 and 0 are fulfilling a requirement that the specifier of CP be filled. (see Safir (1985) for an analysis along these lines).

- (33)a. Es wird getanzt.
 becomes danced
 'There was danced'
- b. *Wird getanzt.
 becomes danced
- (34) a. Es sind drei Kinder gekommen
 are three children come
 'There have come three children'
- b. *Sind drei Kinder gekommen.
 are three children come

Thus, some condition must be added to Licensing and Identification principle stipulating that the first position cannot contain a null pleonastic, even though these are in principle permitted, as we see in 0b and d.

- (35)a. Es wurde gestern auf dem Schiff getanzt.
 ex was yesterday on the ship danced
 'There was dancing on the ship yesterday'
- b. Gestern wurde (*es) auf dem Schiff getanzt.
 yesterday was on the ship danced
 'There was dancing on the ship yesterday'

- c. Sie sagte, es wurde getanzt.
 she said es was danced
- d.weil getanzt wurde.
 since danced was

These facts follow directly from the principles of economy of projection if we assume that the relevant condition is that CP must be projected in German. If the head of CP is filled by an overt complementizer, as in 0d, then nothing needs to be in the specifier of CP. If no overt complementizer occupies the head of CP in the initial structure, then CP must have a filled specifier, either a pleonastic or some other XP. As we saw in Yiddish, the head must be filled before V-movement in order for the specifier to be empty. The pleonastic arises only if neither spec,CP nor the head of CP has any content prior to V-movement.

In 0, we saw that German overt pleonastics show up in spec,CP, but do not appear in spec,IP(AGRP). The spec,AGRP seems to be allowed to be null when the subject is nonthematic. However, the facts now become more complex, since some types of pleonastics cannot be null. Following Safir(1985), we may characterize those contexts in which pleonastics must be overt as those in which the predicate assigns some sort of thematic role to its external argument, in contrast to the cases above, where there is no external argument whatsoever. The predicates which assign some sort of thematic role to an external argument include weather predicates and predicates which take a sentential subject.

- (36) a. Es ist klar, dass die Frau das Buch gekauft hat.
 is clear that the woman the book bought has
 'It is clear that the woman has bought the book'
- b. Heute ist es klar dass die Frau das Buch gekauft hat.
 today is clear that the woman the book bought has
 'Today it is clear that the woman has bought the book'
- c. *Heute ist klar dass die Frau das Buch gekauft hat.
 today is clear that the woman the book bought has
 'Today it is clear that the woman has bought the book'

- (37)a. Es regnet.
 it rains
 'It is raining'
- b. Heute regnet es.
 today rains
- c. *Heute regnet.
 today rains

(Travis 1984:162)

These facts suggest that the specifier of AGRP cannot be empty, unless the predicate is one which assigns no theta role at all, as in 0. Aside from the cases in 0, then, German behaves exactly as English does: the inflectional morphology is base-generated on the

verb, and hence in order for AGRP to be projected, the specifier of AGRP must be filled, either by a pleonastic or by a referential NP.

As for the sentences in 0 where the pleonastic does not occur, for some reason the specifier of AGRP need not be filled when the predicate assigns no role at all to an external argument. I would like to suggest that in this case, the agreement on the verb is default agreement, which does not need to be checked at LF. The suggestion that the agreement found with this sort of predicate is a default agreement is not new; Burzio (1986) characterizes similar cases in English as involving a failure of agreement:

(38) There's three cats on the porch.

So suppose German differs minimally from English in that default agreement need not be checked at LF. If agreement need not be checked, then there is no reason that AGRP would have to be projected. In embedded clauses, the verb could remain in situ, and in matrix clauses it could move directly to C. In either case, no AGRP would be projected, and so there is no expletive.

5.5 Discussion: Licensing, Identification and Morphology

In this section we have reviewed two of the most promising attempts to find a specific morphological property which correlates with syntactically "strong" agreement. The problem of whether there is a morphological correlate to strong AGR is independent of whether the theory of null subjects involves Licensing and Identification, Feature Checking, or Economy of Projection. In my theory, in which strong agreement is defined as agreement which has an independent lexical entry for each affix. If there should turn out to be no morphological correlate of strong agreement, then whether affixes have independent entries will have to be stipulated, as other theories will have to stipulate that given heads are Licensers or that N or V Features are strong. The advantage that my theory has over these others is that I will only have to stipulate something that must be determined for any item in a language anyway: what sort of representation it has in the Lexicon. I do not need to add any other Features or Conditions.

We saw that Jaeggli and Safir's (1989) Morphological Uniformity Condition suffers from fatal empirical weaknesses. I argued further that Rohrbacher's (1994) Full Paradigm Condition on the Referentiality of INFL is problematic in that it predicts that all languages with V-to-I movement allow null subjects, and it requires us to add an ad-hoc and empirically insufficient Identification Condition to capture the facts of German and Yiddish, which have V-to-I movement but allow only null pleonastics, and these only in certain contexts. Thus it seems that we must conclude at least at present that there is no absolute morphological property which correlates with strong AGR.

What then, of the descriptive generalization made by Jaeggli and Safir, upon which my theory is based: that null subjects occur in the context of either strong AGR or no AGR at all? If this generalization is abstract rather than directly related to some morphological property, then why did Jaeggli and Safir make the original observation

based upon surface properties of the languages that they had looked at? Do we expect now to find a language which has a morphological paradigm like that of English but which allows null subjects?

We can answer this question by observing more closely the cases which constitute counterexamples to the proposed morphological correlates. We find languages like Swedish, which show that Morphological Uniformity is not the correct characterization of strong vs. weak agreement, but which confirm the observation that languages with weak agreement do not allow null subjects. We also find languages like Brazilian Portuguese, Yiddish and German, which meet Rohrbacher's criterion for strong agreement, yet still do not allow the specifier of AGRP to be null. What we do not find is languages with paradigms like English but which allow the specifier of AGRP to be null. In other words, if a language has a Full Paradigm, the agreement affixes may be listed as independent lexical entries, but they are not necessarily so listed. Whether they are so listed is a language-specific idiosyncrasy. However, if the language has some agreement but does not have a Full Paradigm, the affixes cannot be listed independently; the paradigm must be stored as such and the affixes must then be base-generated on the verb. Thus, when we look across languages, we will find that languages with weak agreement, which we are now defining as languages with some agreement but without a Full Paradigm, cannot allow the specifier of AGRP to be null, and some languages with strong agreement (i.e., with a Full Paradigm) will allow the specifier of AGRP to be null (although others won't).

6. Checking the Typological Predictions

Our theory so far is that general economy principles dictate that in languages with weak agreement, the specifier of AGRP must be overt, whereas in languages with no agreement at all, there is no such requirement, because there is no AGRP at any level. In languages with strong agreement we will find some which allow the specifier of AGRP to be null and others which do not, depending upon whether the agreement affixes have independent lexical entries. The predictions of this theory so far are clear: a language should forbid null subjects if and only if it has weak agreement, and should allow null subjects if it has no agreement at all.

(39) Predicted Language Types:

agreement type	spec, AGRP may be null	spec, AGRP must be filled
strong	Spanish	Yiddish
weak	*	English
none	Japanese	*

In a recent article claiming that there is no systematic relationship between richness of agreement and the licensing of null Subjects, Hermon and Yoon(1990) cite examples that they believe instantiate the two types above²⁰ which the present theory predicts should be impossible. They cite Irish as a language with weak agreement, yet allows null subjects, and cite Papiamentu, Duka, Guaymi and Tagalog as languages that have no agreement at all yet do not allow null Subjects. I will outline in this section what my theory would have to say about these languages. The suggestions made in this section will be of necessity sketchy. There is clearly a good deal of work to be done toward a complete analysis of the phenomena in question; my goal here is to demonstrate a plausible response to the apparent counterexamples that I have encountered so far.

6.1 Weak Agreement and Null Subjects: Irish?

Yoon and Hermon consider Irish to have weak agreement because many but not all Irish inflected verbs are in the so-called 'analytic' forms, which have no person/number marking. This can be illustrated by the paradigm for the conditional of the verb cuir 'put', as given in McCloskey and Hale (1984:489).

available to me on the first three of these is rather sketchy, and so I will look at another language, Haitian Creole, which seems to have properties similar to those Yoon and Hermon cite. Ultimately of course a more thorough analysis of these possible counterexamples should be done; here I hope just to sketch out what my analysis of such cases would have to involve. As for Tagalog, both Kroeber (1991) and Hung, Guilfoyle and Travis (1992) analyze it as having a form of agreement, (although the agreement morphemes themselves indicate features other than person and number) and so I will set it aside.

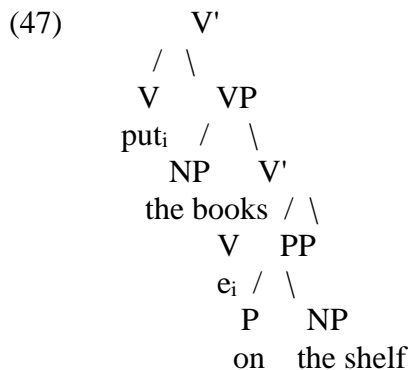
Haitian Creole has also been described as a language lacking agreement but disallowing null subjects. However, for reasons independent of the present theory, deGraf(1993) argues that the morphemes that other people have analyzed as pronouns are in fact agreement markers, which are clitics rather than affixes. Thus, in a sentence like 0, the obligatory person/number morpheme is not a pronoun; rather it occupies the head of AGR, and differs from a language like Italian only in that it cliticizes but does not completely affix to the verb.

- (43) Haitian (from DeGraf 1993)
 a. *(mwen/ou/li/nou/yo) achte yon chemiz
 1sg/2sg,pl/3sg/1pl/3pl buy DET shirt
 'I bought a shirt'

These AGR morphemes are lacking in constructions where no thematic role is assigned to the subject, as in 0. This resembles the situation in German, where I suggested that such constructions actually have no agreement, and hence no AGR projection. As in German, Haitian does have agreement in constructions where an external theta role is assigned to a sentential argument, as in 0.

- (44) a. te fe fret
 ANT make cold
 'It was cold'
 b. Gen jwet sou tab la
 have toys on table DET
 'There are toys on the table' (DeGraf 1993:72)
- (45) *(li) difisil pou nou jwenn travay
 3sg hard for 1pl find job
 'it is hard for us to find a job' (DeGraf 1993:85)

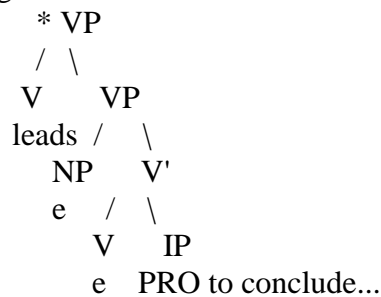
If an analysis along these lines can be extended to those languages which have been said to lack agreement but have obligatorily overt subjects, then the predictions of my theory will be met: all languages which lack agreement also allow null arguments.²²



We may note that the operation of a general principle of economy such as the one that I made explicit above in 0 is implicit in Hale and Keyser's and Larson's work. In their theories, VP shells are allowed to be projected above the VP which projects from the verbal lexical entry. Presumably this process is restricted so that only XPs which will receive some sort of interpretation can be projected. It is interesting then, if we find empirical consequences supporting the presence of such a principle.

Suppose that 0 is the underlying structure for a ditransitive VP in English. The lower verbal head is empty. By the economy principles discussed above, we would expect that the specifier of this projection could then not be empty. If it were, both the head and the specifier would be empty and the lower VP projection would not be licensed. (recall that pro does not count as a specifier with content, because it does not have phi features until they are filled in by agreement or control.)

(48) English:



I would like to tentatively suggest that languages which lack null object pronominals use a control-type structure like 0 as the underlying structure for transitive and ditransitive VPs, and that languages like Italian which allow null objects use a raising type structure like 0, as illustrated in 0.

- b. Italian subject of finite clause:
GCR forces pro to be coindexed with AGR, and then AGR is rich enough to identify pro
- c. Chinese subjects:
GCR forces pro to be coindexed with higher subject.
- d. Chinese objects:
GCR forces object to be coindexed with subject, in violation of principle B.
Null objects in Chinese are variables, not pro
- e. Null object in language with rich object AGR (Pashto)
GCR forces pro to be coindexed with Object AGR, which is rich enough to identify pro.

Unfortunately, some problems with Huang's approach have been uncovered by researchers who have applied his criteria to other languages which lack agreement. Huang's theory makes the prediction that null objects can be pro only in a language which has rich object agreement. In a language like Chinese with no agreement, null objects must be variables. However, several authors who have applied Huang's tests to other languages lacking agreement have found that by Huang's tests, these languages have pro in object position. Two such languages are Korean, investigated by Yoon(1985), and Thai, investigated by Hoonchamlong(1991). A summary and discussion of these types of data can be found in Cole(1987) and in Speas(to appear).

Cole proposed that the GCR is parameterized: languages like Thai do not apply the GCR to small pro. The problem with this is that Huang's GCR was designed to be a simple extension of the principles of Control, and was intended to be subject to internal parameterization with respect to the possible minimal domain and possible controllers. However, it was not intended to apply only to one type of null pronominal, or only in some languages. Further, there is no clear independent evidence of the operation or lack of operation of the GCR in the relevant languages. If we have to stipulate whether a given language uses/does not use the GCR for small pro, as Cole suggested, then we might as well simply stipulate that the language does/does not allow null pronominal objects. Thus, as with the designated head theory, we are left with a stipulation that a given language either does or does not allow null pronominal objects.

What I have presented in this section is an attempt to apply a general principle of economy of projection to account for the distribution of null objects. The account is very sketchy, but I hope to have demonstrated an alternative to either stipulating a class of licensing heads, or allowing the Generalized Control Rule to apply only in certain languages.

8. Conclusion

I have proposed in this paper that a very general principle of economy of derivation

constrains how phrases are projected, in a way that explains the distribution of null subjects, and possibly all null arguments. My suggestion is that, adapting the proposal of Rohrbacher(1992, 1993), Strong AGR is listed in the lexicon with each affix having an individual lexical entry, while Weak AGR is listed attached to its verbal host in a paradigm. This proposal, combined with general economy principles that have the effect that XP is projected only if X or Spec,XP have content, yields the result that null Subjects are not allowed in languages with Weak AGR, since in such a language the head of AGRP will have no content. Language which lack agreement altogether, such as Japanese and Thai, do not project an agreement phrase at all, and so the question of the content of such a phrase does not arise.

The Extended Projection Principle follows very naturally under this theory. We expect to find overt pleonastics in just those environments where the head of a necessary phrase does not have the content required to license the projection. Evidence from German and Yiddish suggests that this explanation of the distribution of pleonastics is superior to previous explanations that were linked to some version of the Extended Projection Principle along with an identification condition on empty categories.

Crucial to my proposal is the claim that AGR can be radically empty in weak agreement languages. I defended this view, and showed how it leads us to conclude that the principles by which phrases are projected project entire phrases, rather than just one node at a time.

Since my proposal makes use of the distinction between strong and weak agreement, I addressed the question of the relationship between strong/weak agreement and specific properties of morphological paradigms. I argued that by locating the weak/strong distinction in whether a language does/does not assign individual lexical entries to its agreement affixes allows the learned idiosyncrasy to be located in properties of the mapping from the Lexicon to Syntax which must be learned in any case. With this proposal there is no need to add an additional condition regarding whether a given head is a member of the class of licensing heads.

I suggested that the Full Paradigm Condition of Rohrbacher(1993) seems to correctly characterize the morphological property correlated with strong agreement, if we consider a Full Paradigm to be a necessary condition on the language treating agreement affixes as individual lexical items, but not as a sufficient condition. If a language has a full paradigm, it may list each affix separately, but it need not. On the other hand, if a language does not have a Full Paradigm, then all affixes must be base-generated on the verb. One important thing that differentiates this proposal from similar ones which contain Licensing and Identification Conditions on pro is that the possibility of any null specifier follows from general principles of economy of projection. Thus, the lexical idiosyncrasy in my proposal involves whether a given set of morphemes in a language that has a Full Paradigm have independent lexical entries or are instead listed in the lexicon as part of a verbal paradigm. This idiosyncrasy is one which must be learned in

any case; it is equivalent to, for example a difference like that between object pronouns in English vs. those in French, where the French pronouns simply have the morphosyntactic property of being clitics, while the English ones have the morphosyntactic property of being independent words.

I also made some tentative suggestions about the application of the economy principles to the projection of VP shells, and hypothesized that null objects are possible only in languages in which V raising is possible within a VP shell.

If the proposals outlined here are on the right track, then the licensing condition on null arguments will no longer need to be stipulated. If the proposals here are on the wrong track, then it would seem that the project of looking for an explanatory theory of the licensing of pro is itself on the wrong track. The present proposal turns out to have interesting implications for the theory of how children can go from thinking that their language allows null subjects to learning that it does not. Rather than taking the position that the child begins by believing that the null subject parameter has a positive setting and then learns that this was incorrect, the child would begin by not being aware that the language had agreement, and thus would treat the language as being like Japanese. Null subjects are permitted because no AGRP is assumed to exist. When the child learns that his/her language has AGRP, s/he must at the same time learn whether AGR is strong or weak. If the language lacks a Full Paradigm, then s/he knows that affixes must be base generated on the verb, and hence knows that null subjects are not permitted. If the language has a Full Paradigm, s/he must still learn whether affixes are individually listed, but once this is learned, the possibility or lack thereof of null subjects will follow. Under this view, there is no null subject parameter, only an AGR strength parameter, coupled with the general principles of economy of representation.

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Dept. of Linguistics
South College
University of Massachusetts
Amherst, MA 01003

speas@cs.umass.edu

Dept. of Linguistics
South College
University of Massachusetts
Amherst, MA 01003
speas@cs.umass.edu

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2. One possibility that will not be discussed in this paper is the possibility

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that overt agreement morphemes in some languages are incorporated pronouns. This possibility seems to exist independent of the strength of AGR, although to my knowledge there are no language which have incorporated pronouns coexisting with agreement morphology within a word, and no current theory of incorporated pronouns explains this fact.

3. Rohrbacher did not mean to say, nor do I, that a language must have strong or weak morphology throughout its lexicon. As the debate among morphologists suggests, many language have aspects of their lexicon that involve strong morphology and others that involve weak morphology.

4. In the diagrams in 0 there seems to be a relationship between verb movement and strong morphology, since the verb in a Spanish-type language moves to pick up the stranded AGR morpheme. However, my theory in principle allows for two other types of languages: Agreement morphemes could have independent lexical entries but not be verbal affixes, so they would stand alone and not trigger verb movement. Such a language, possibly exemplified by Warlpiri, would be predicted to allow null subjects. Also, affixes could be base-generated on the verb but then verb movement could take place for some other reason. Such a language would be predicted not to allow null subjects, for reasons discussed in Section 3. I will claim that Yiddish and German exemplify this possibility.

5. I will show in Section 5 how this result also extends to languages that allow null pleonastics but not null referential subjects.

6. Projecting more than one node at a time becomes necessary in Kayne's system in order to explain why heads cannot adjoin to maximal projections. If the phrase has another phrase above it, the representation is ruled out by the LCA. However, if a head adjoins to the top of the phrase marker, the only way to rule it out by the LCA is to force the head to have a specifier position.

7. In Section 5, I will discuss the proposal of Rohrbacher(1993) that French does in fact have null subjects.

8. This is essentially what remains in the theory of Kayne and Chomsky too. For Kayne, the problem is that in order to rule out adjunction of a head to a non-head, it is necessary to stipulate that the topmost head in a chain of heads must have a specifier. Having to make this stipulation undermines the project of doing away with X-Bar Principles, since there is a principle that stipulates the requirement of a specifier in the topmost projection. For Chomsky, the problem is to correctly get the distinction between projections and segments, and the solution amounts to a stipulation that MERGE may yield either segments or projections.

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9. This leave open the possibility that there might be cases where some other considerations outweigh the cost of violating the economy principles. Grimshaw 1993 proposes an Optimality-theoretic account of functional projections which includes a ranked constraint requiring that heads be filled. This has clear similarities to what I am proposing here, but since ranking has not been crucial to the analysis of any of the facts relevant to my proposal, I have not been able to make a fruitful comparison of the two.

10. They mention that strictly semantic coindexing is not sufficient to count as binding, and that this has consequences for PRO, but they don't elaborate.

11. One other proposal that bears similarity to mine is that of Contreras(1994), who proposes that Spec,IP is not projected in Spanish. He doesn't discuss the Japanese-type languages, and he states his condition as a type of licensing condition, but the spirit of his proposal is to limit projection of unfilled positions by means of general principles.

12. The issue of the empirical validity of this generalization will be addressed in Section 5. I will argue that it is valid in essence, but that there are some languages with strong agreement which nonetheless do not allow null Subjects. This kind of counterexample to the generalization will be shown to be consistent with the proposal I am making.

13. Tateishi(1989) and Noguchi(1991) have argued that honorification in Japanese involves some sort of agreement. Since this agreement does not involve the standard sort of person and number features I will assume that it does not involve an AGR projection.

14. The theories of Huang(1984, 1989) and Borer(1989) are theories which do not have licensing and identification conditions per se. A detailed comparison of these two theories with the present one is beyond the scope of this paper, although aspects of Huang's theory do figure in my discussion of null objects in Section 7. Future work could find ways of combining their insights about control with my view of the nature of strong agreement, since the head which strong agreement projects will c-command other nodes in the tree in a way which an affix attached to the verb will not.

15. Under the theory being defended here, we are led to claim that Swedish requires an AGR projection at LF because the presence of residual agreement signals that it is an agreement type language. Since there is no overt verbal morphology to license that AGR projection, an overt subject is needed. I do not know how the presence of residual agreement would lead to the postulation of an AGR projection. The fact that past participles show agreement, however,

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is interesting. Perhaps the presence of the constructions with past participles signals the presence of AGR projections in the language, and once the language learner learns that such projections exist, they are assumed to be required in general. How this works will need to be explored carefully in future work.

16. Rohrbacher adopts my theory of the Chinese-type languages, which allow null subjects because they have no AGR at all. Therefore, in such languages it should not matter whether there is V-to-I movement. Insofar as Rohrbacher adopts my theory of AGR-less languages, he has the same problem with Swedish that I do, as described in the previous footnote.

17. Rohrbacher does cite very interesting statistics about the frequency with which the clitics occur in spoken French. Still, among the studies he cites, clitics are absent in between 20% and 35% of sentences with NP subjects, so it seems clear that the clitic is not obligatory.

18. Yiddish quite clearly has V-to-I movement, as demonstrated by Diesing(1990). With German it is hard to tell whether there is V-to-I movement: in matrix sentences the inflected verb occupies C, so may or may not have moved through I, and in (V-final) embedded sentences the inflected verb is final and so may or may not have undergone string-vacuous movement.

19. The question of whether the A-A' distinction is primitive or derives from some other subsystem of the Grammar such as Case Theory is beyond the scope of this paper.

20. They also discuss languages like German, which have strong agreement but disallow referential null subjects, but as outlined above, my theory does not predict that such a language would have to have null subjects.

21. McCloskey and Hale note that null pleonastics are possible in certain circumstances with the analytic forms.

22. In analyzing a language that appears to have obligatory subjects, it is important to consider whether the relevant obligatory position is really the specifier of AGRP. If the language has some reason to necessarily project some other functional projection that has no contentful head (eg. CP), then we may find some other specifier position to be obligatory, as in German matrix sentences where the specifier of CP is obligatory.

23. I am grateful to Jon Nissenbaum for extensive discussion of the possibility that all direct objects are specifiers. He has written a term

paper pursuing this idea in an analysis of French participle agreement.