

IN CHAOS OR INCHOATIVE?
AN ANALYSIS OF INCHOATIVES
IN MODERN STANDARD ITALIAN¹

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1.0 The problem

Many instances of clitic reflexive pronouns which do not involve reflexivity occur in various languages, among them Italian. The particular use of such pronouns studied here is seen in (1):

- (1) Io mi ammalaì. 'I got sick.'
Roberto si ammalaò. 'Robert got sick.'

These sentences, unlike reflexive sentences, cannot be derived from a deep structure with two coreferential NP, one in subject and the other in object position, since such a structure does not express the meaning of (1) nor is it even grammatical:

- (2) *Io ammalaì me. 'I sickened me.'
*Roberto ammalaò Roberto. 'Robert sickened Robert.'

Such sentences have been called inchoatives with various meanings assigned to the term, such as 'changes of state', 'inceptiveness', and predicates which are 'experienced' by the subject rather than 'emanating' from that subject. These definitions, while they describe semantic features common to many verbs that can appear in inchoative structures, are not precise standards for judging whether or not a sentence is inchoative. For example, *cadere* 'fall' and *raffreddare* 'chill' may both be used with subjects that 'experience'

the predicate, cominciare 'begin' and iniziare 'initiate' both involve 'inceptiveness', aumentare 'increase' and congelare 'freeze' both describe 'changes of state', yet in all these pairs the first verb cannot appear with reflexive pronouns but the second can. Instead of such semantic features, we will define inchoatives by their syntactic properties. We argue that the reflexive pronouns of (1) are transformationally introduced, that the surface subject of (1) originates in deep object position and the deep subject node is empty, and that there is a rule moving the deep object into subject position and leaving behind a copy, thus creating the structural description for the transformational rule REFLEXIVE.

1.1 Phrase structure rules versus REFLEXIVE. The clitics seen in (1) have a full paradigm for person and number:

- (3) Io mi ammalmari, 'I got sick.'
 Tu ti ammalmasti, 'You got sick.'
 Lui si ammald, 'He got sick.'
 Noi ci ammalammo, 'We got sick.'
 Voi vi ammalmaste, 'You (all) got sick.'
 Loro si ammalarono, 'They got sick.'

The surface subject of such sentences may be either gender (cf. Lui/Lui si ammald 'She/He got sick'). In composite tenses the auxiliary used is essere (cf. Maria si è svegliata 'Mary woke up'). Past participles agree in person, number, and gender with the ~~clitic~~, which ~~in turn so agrees with the surface subject~~. In inchoatives embedded under fare 'make' and lasciare 'let' (among other verbs), the clitic does not appear (cf. Ho fatto ammalar (*si) Giorgio 'I made George sick'), just as the reflexive pronoun does not so appear (cf. Ho fatto graffiare (*si) Giorgio 'I made George scratch himself').

This clitic may be introduced by one of two means: a transformational rule or a phrase structure rule (PS-rule). If it is introduced by a T, that T must be cyclic in order to account for its occurring before the cyclic rule of Equi-NP Deletion in a sentence such as:

- (4) Mi ha pregato di ammalarmi prima del matrimonio.
 'He begged me to get sick before the wedding.'

If the clitic of inchoatives is introduced by a PS-rule, this rule must have the form:

- (5a) S → NP clitic VP₃

That clitic is not free; it must match the subject for person, number, and gender:

- (5b) S → NP

αperson
βnumber
γgender

 clitic

αperson
βnumber
γgender

 VP

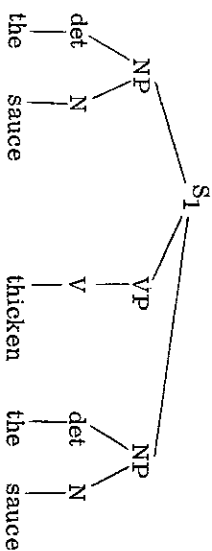
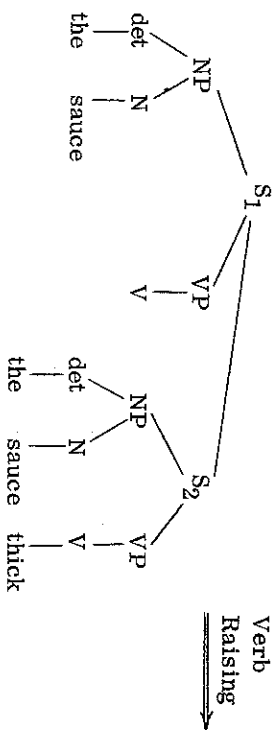
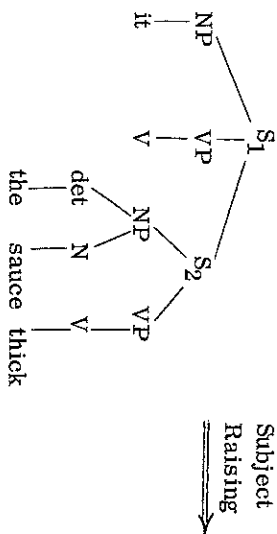
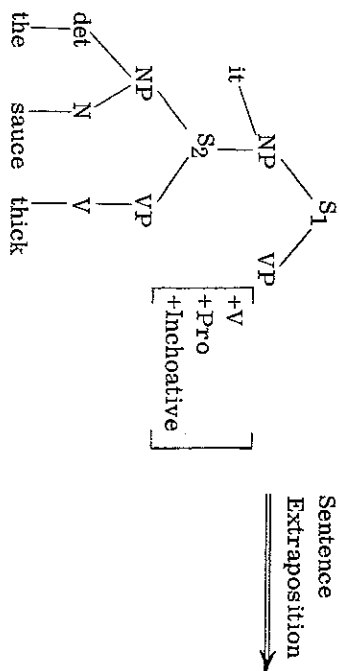
But again not all possible clitics are allowed, since for a third person masculine singular subject, for example, the possible clitics are gli (dative), lo (accusative), and si (reflexive), but only si is acceptable. Thus we have:

- (5c) S → NP₁ reflexive pronoun₁ VP

But now there are two rules producing reflexive pronouns: the PS-rule (5c) and the T REFLEXIVE (which we do not discuss in detail here, but which, in brief, converts the second of two coreferential NP within the same simplex S into a reflexive pronoun, and applies cyclically). Since any grammar with two mechanisms to produce one form (in this case, reflexive pronouns) is costly, we wish to eliminate one mechanism: precisely the PS-rule, since its use is limited to inchoatives while REFLEXIVE applies to reflexive as well as inchoative structures. We note that REFLEXIVE adequately accounts for all the features of these clitics noted above. What is more, the PS-rule presents the problem of accounting for the inadmissibility of the clitic with simple verbs having no accusative, dative, or prepositional object (cf. *Si va(lmo), *Si sbadiglia(no) in a non ad hoc manner. However, REFLEXIVE does not encounter this problem, since REFLEXIVE applies only when the VP contains some NP (whether accusative, dative, or object of a preposition). There is, however, one major disadvantage of REFLEXIVE not found with the PS-rule: it must account for the inadmissibility of non-clitics in inchoatives (*Roberto ammald se) in some non-obvious way, while the PS-rule generates only clitics. We will offer an explanation using REFLEXIVE which does account for this property.

1.2 The embedded S proposal. Lakoff (1965) and Roldán (1971) have proposed that inchoatives have an embedded sentence subject, which is a stative sentence, and an abstract matrix verb:

(6)



Presumably the foundation for this analysis is based on the semantic property of 'change of state'. No syntactic evidence for the embedding is given, however, and there is evidence that such embedding is doubtful. First, there are no T's which may apply on S₂. This could be explained if Lakoff's Verb Raising were precyclic, thus destroying the S₂ node and therefore the S₂ cycle. However, Verb Raising cannot be precyclic since Lakoff orders it after the two cyclic rules Sentence Extrapolation and Subject Raising. Second, Fodor (1970) has shown that when two verbs are present in a given deep structure and both are semantically compatible with time adverbs, we should be able to have two adverbs in that structure, one referring to each verb. In inchoatives both the state (the lower verb) and the change (the abstract matrix verb) are semantically compatible with time adverbs. Yet we never find two such adverbs in inchoatives (cf. **Alle otto il ghiaccio si è fuso per due ore* 'At eight o'clock the ice melted for two hours').

1.3 The simplex S proposal. Since there is syntactic evidence against embedding, and since the surface form of inchoatives is simple, we propose a simplex S source for inchoatives. Within this S we must determine the roles of the surface constituents. We noted with (2) above that the deep structure for inchoatives cannot have coreferential subject and object for semantic considerations. Syntactically, as well, such a structure is inadequate. We see in (7a) below that were we to accept such a deep structure, the selectional restrictions on the subject of *inflammare* are allowed to be violated in NP_i V NP_j precisely when *i=j*. This explanation is not only ad hoc, it also is not true for other reflexive structures such as *Giorgio si guarda* ('George looks at himself'), where the selectional restrictions may not be violated (**La carta si guarda* 'The paper looks at itself'). Instead we propose an analysis explaining the above facts naturally.

1.3.1 The surface subject: The deep object. That the surface subject originates in deep object position can be argued on three counts: (1) the surface subject is the logical object, (2) most verbs found in inchoatives require objects when used actively and non-inchoatively, and (3) the selectional restrictions on the object of an active non-inchoative verb and on the surface subject of this same verb used in an inchoative sentence are very similar (if not identical).

First, when talking of 'logical' roles we are not referring to any precise criteria, since we know of none. Instead, we mean simply that the NP *il fiengo* has the same relationship to the V *inflammare* 'ignite' in (7a), an inchoative, as it has in (7b), an active non-inchoative sentence:

- (7a) Il fieno si infiammò.
'The hay caught fire.'

- (7b) Il fiammifero infiammò il fieno.
'The match ignited the hay.'

We would be missing a generalization if we failed to generate il fieno 'the hay' from the same underlying source in both (7a) and (7b).

While the source of il fieno in (7a) is at issue, we can rely on the most common derivation of active sentences to derive il fieno in (7b) from underlying object position.

Second, most verbs which appear in inchoatives cannot appear in active non-inchoative intransitive sentences:

- (8a) (inchoative) La porta si è aperta.
'The door opened.'

- (8b) (active, non-inchoative) Ho aperto la porta.
'I opened the door.'

- (8c) (active, non-inchoative) *Ho aperto.
'I opened.'

We can explain (8b) and (8c) by subcategorizing aprire in the lexicon as occurring in the frame [. . . ____ +NP . . .], that is, as requiring an object. Since aprire in (8a) has the same meaning as in (8b), that of changing the state of some NP from (more nearly) closed to open, we assume that aprire is the same lexical item in all of (8). Thus, aprire requires a deep object in (8a) as well as in (8b). The only candidates are la porta and si. But we have already argued (in 1.1) that si is transformationally introduced, thus there must be some NP underlying si. The only possible NP is la porta. We are led to the conclusion that la porta must be the deep object of aprire in (8a).⁴

Third, consider the following sentences:

- (9a) *Svegliò il rumore.
'I wake the noise.'

- (9b) Il rumore mi sveglia.
'The noise wakes me.'

- (9c) *Il rumore si sveglia.
'The noise wakes up.'

- (9d) Apro la porta.
'I open the door.'

- (9e) *La porta apre la scatola.
'The door opens the box.'

- (9f) La porta si apre.
'The door opens.'

Svegliare in active non-inchoative sentences accepts inanimate subjects but rejects inanimate objects. However, in inchoatives it rejects inanimate surface subjects. Aprire in active non-inchoative sentences accepts inanimate non-instrumental objects, but rejects such subjects. However, in inchoatives it accepts inanimate non-instrumental surface subjects. In both cases the selectional restrictions on the surface subject of inchoatives are the same as those on the object of the same verbs used in active non-inchoative sentences. Again, in order to explain this fact the grammar must derive surface subjects of inchoatives from the same underlying source as surface objects of active non-inchoatives. Assuming that the active non-inchoative sentences above have surface roles of constituents very similar to deep roles, we derive the surface subjects of inchoatives from underlying object position.

1.3.2 The deep subject. Looking at an inchoative such as (7a), we have already argued that il fieno originates in object position but not in both object and subject position. Since there are no NP other than il fieno and si in the surface structure of (7a), we have no obvious candidate for the deep subject. In fact, we argue that there is no deep subject and cite as evidence restrictions on instrumental phrases, manner adverbs, and purpose clauses:

- (10a) Il fieno si infiammò per il fulmine.
'The hay caught fire because of the lightning.'

- (10b) *Il fieno si infiammò deliberatamente.
'The hay caught fire deliberately.'

- (10c) *Il fieno si infiammò per spaventare la mamma.5
'The hay caught fire in order to scare mommy.'

In (10a) we have an instrumental per-phrase which cannot occur in an S with an agentive NP (cf. *Carla infiammò il fieno per il fulmine). The fact that per il fulmine can occur in (10a) supports the claim that there is no agentive NP in the deep structure.⁶ In (10b) the

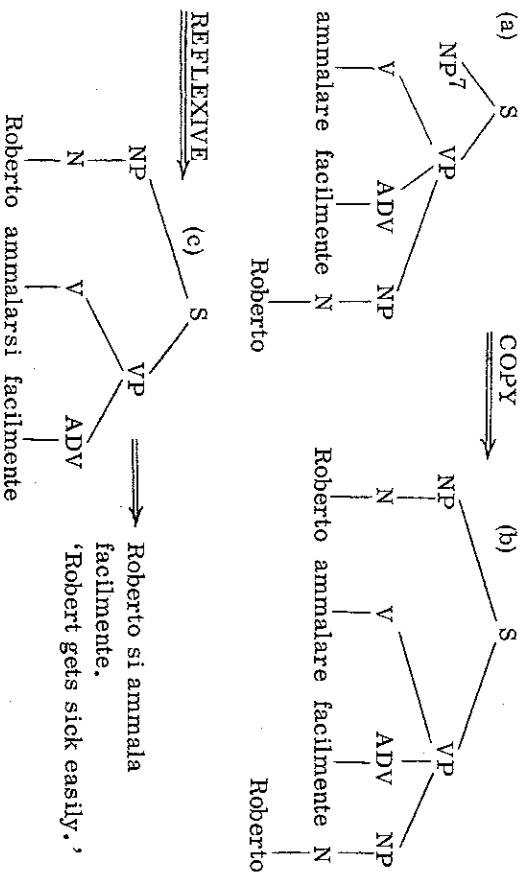
manner adverbial *deliberatamente* cannot occur without an animate agentive NP (cf. **Il fulmine infiammò il fieno deliberatamente* but *Carla infiammò il fieno deliberatamente*). Thus (10b) must not have an animate agentive NP in deep structure. Likewise, in (10c), we have a purpose clause which requires an animate agentive NP as its own subject, and therefore as some constituent of the higher S (since its own subject has been deleted by Equi-NP Deletion under identity with some NP in the matrix). The unacceptability of (10c) is due precisely to the lack of just such an NP.

While the facts shown in (10) illustrate only that no agentive NP can be present in the deep structure, we can conclude that no subject is present in the deep structure since the verbs which may appear in inchoative sentences (for a partial list see Section 3 below), if they have deep subjects, require agentive subjects.

2.0 A solution

We have argued thus far that inchoatives employ REFLEXIVE, that they have a simplex deep structure, that their deep subject node is empty, and that their surface subject originates in deep object position. We need an analysis which will move the deep object into subject position and create the structural description for REFLEXIVE. We propose the following deep structure and analysis:

- (11) Surface: Roberto si ammala facilmente.
Deep: ammalare facilmente Roberto.



The deep structure in (11a) follows from the discussion in Section 1 above. The transition from (11b) to (11c) to surface structure presents no new theoretical problems. The only step to be clarified is the one from (11a) to (11b), labeled COPY.

2.1 COPY. There are two logical possibilities for the internal mechanism of COPY: either it merely copies the object into subject position, or it moves the object into subject position leaving behind a copy. Many linguists have proposed copy rules for similar constructions (Langacker 1970, Fillmore 1968), but no one to my knowledge has specified exactly how the rules work. We assume the position that COPY has two parts: movement and copy. There are two reasons for this. First, the verbs which can appear in inchoatives in various languages seem to form a (very) rough semantic class. Therefore, we would like to offer an analysis which will be applicable with minor variations to languages other than Italian. Looking at the English inchoative construction, we note that it does not occur with reflexive pronouns (*John awoke*, *Mary got sick*, *The door opened*). Lakoff (1965) has claimed that the sentences in (12) are inchoatives:

- (12a) John hurt himself when he fell down.
(12b) John dirtied himself.

From this data Lakoff claims that the reflexive does appear, though rarely, in some inchoatives in English. However, (12) does not present inchoatives, but rather real reflexives. We can see this by noting that if the context explicitly excludes the possibility of reflexivity, the reflexive pronoun cannot occur:

- (13a) *John hurt himself when a tree fell on him.
(13b) *John dirtied himself when Mary poured coffee on him.
(cf. John got hurt when a tree . . .
John got dirty when Mary . . .)

The reflexive clitic of inchoatives in Romance, however, does not imply the possibility of true reflexivity:

- (14a) Giovanni si fece male quando un albero cadde su di lui.
(14b) Giovanni si sporcò quando Maria versò del caffè su di lui.

Given these facts, there is no evidence that English has a copy at any stage in the derivation of an inchoative S. Thus inchoative in English probably involves a simple movement rule. If Italian COPY is a movement rule plus a copy formation, the Italian derivation differs from the English by only one step, the extra copy formation.

Second, there are other instances of copies in Italian, and all of them are coordinated with movement rules. For example:

(15) (Left Dislocation) *Tua sorella, lei è andata in cerca di guai.*
'Your sister, she went looking for trouble.'

(Right Dislocation) *L'ho vista proprio qui, tua sorella!*
'I saw her right here, your sister.'

(Focus on verb) *Il cane lo sento (, ma non lo vedo).*
'I hear the dog, but I do not see it.'

Certainly the examples of (15) suggest many questions about focusing and topicalization which cannot be answered here. It suffices our purposes to note that all copies in Italian are associated with movement rules (although not all movement rules call for copies). Thus, if COPY is a movement rule as well as a copy rule, it is consistent with the other data we know about copies.

2.2 The explanatory power of this analysis

2.2.1 Intransitive versus transitive. In the opening of this paper we noted that *cadere* does not appear in inchoatives, but *raffreddare* does. We now have a ready explanation: *cadere* is an intransitive verb (cf. *Maria cade* (**Il fazzoletto*)), thus it cannot appear in the deep structure (11a); *raffreddare*, on the other hand, is a transitive verb, (cf. *Il ghiaccio raffredda l'acqua*), therefore it can appear in (11a).

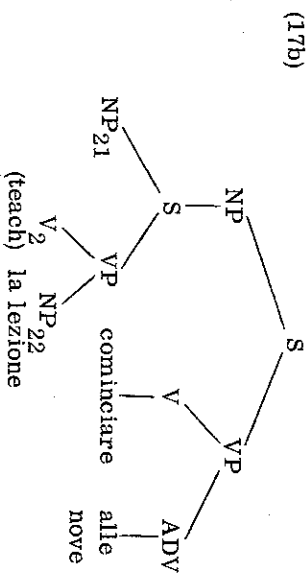
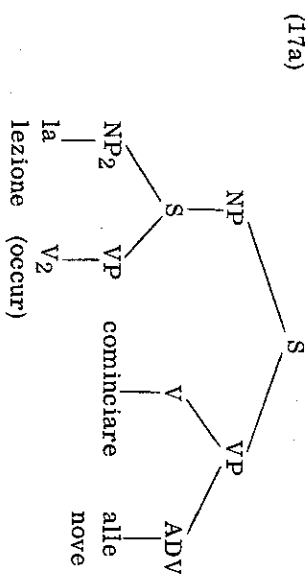
2.2.2 Complex versus simplex. In Section 1.0 we noted also that *cominciare* does not appear in inchoatives, but *iniziare* does. From studies done by Perlmutter (1970) and Newmeyer (1970), we assume that *cominciare* can appear in only two deep structures: an intransitive one with a sentential NP subject, and a transitive one with a sentential NP object. Let us consider the following two sentences:

(16a) *La lezione (*si) comincia alle nove.*

(16b) *La lezione si inizia alle nove.*

'The lesson begins at 9 o'clock.'

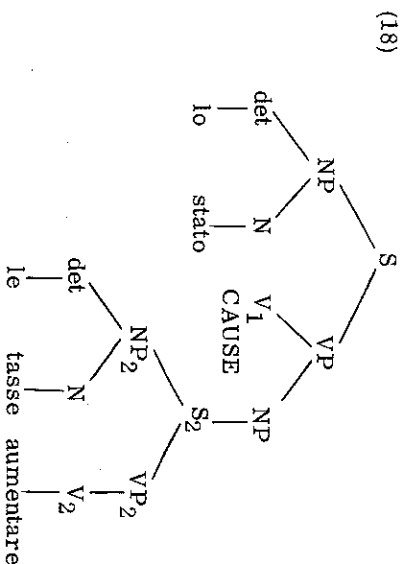
From arguments in Perlmutter (1970) we conclude that active sentences with *cominciare* whose subject is inanimate must have the former deep structure; that is, a sentential NP subject. The possible deep structures for (16a) are:



The difference between (17a) and (17b) is the role the NP *la lezione* plays in the embedded S. (Note that V_2 in both structures could be filled by many verbs. There is a transformation which deletes V_2 . See Newmeyer (1970), Ross (1973), and Karttunen (1968) for justification of this kind of V deletion.) If (17a) is the correct deep structure, V_2 deletes and NP_2 raises into₀ subject position. COPY never applies so we do not get a reflexive pronoun in surface structure. If (17b) is the correct deep structure, NP_{22} moves into the empty NP_{21} node, leaving a copy (by COPY); REFLEXIVE applies putting a reflexive clitic on V_2 ; then V_2 deletes along with its clitic. At this point the derived lower subject raises into matrix subject position and again we are left with no reflexive pronoun in surface structure. *Iniziare*, on the other hand, is a transitive verb which easily falls into the deep structure of (11a). Thus, (16b) has the regular inchoative derivation.

2.2.3 No copy. A third pair of verbs noted in the opening of this paper is augmentare and congelare; the former allows no reflexive pronouns, the latter does. One basic difference between them is that noted between cadere and raffreddare in 2.2.1 above: augmentare can appear in intransitive sentences (La folla augmenta 'the crowd grows'), while congelare requires a transitive frame (Il vento mi congela 'the wind freezes me'). However, augmentare, unlike cadere, is not restricted to intransitive frames (cf. Lo stato augmenta le tasse 'The state increases the taxes'). There are at least two possible analyses for this behavior. Either augmentare is listed in the lexicon as occurring in both transitive and intransitive frames, or one of the frames is basic and the other is transformationally derived. A drawback of the first analysis is that it fails to predict the fact that the selectional restrictions on the object of augmentare used transitively and on its subject used intransitively are the same.

The second analysis could easily handle this fact by saying either that (1) the transitive form is basic and the intransitive is derived from it by movement of the object into subject position, or (2) the intransitive form is basic and the transitive one is derived from it by movement of the subject into object position. Both solutions have problems. The first must explain why, if augmentare appears in transitive deep frames, it does not undergo COPY when no deep subject is present (cf. La folla (*si) augmenta). Augmentare will have to be marked as an exception to the part of COPY that leaves a copy. The second solution calls for some complex structure in order to account for the appearance of a subject in the surface form of transitive sentences. The subject would originate as the matrix subject; the matrix verb would be an abstract cause verb; and the matrix object would be the intransitive sentence with augmentare:



NP₂ would move to the right of VP₂ under S₂ and V₂ would then be incorporated into V₁ by some sort of verb raising. (This is similar to Lakoff's (1965) analysis of causatives; however, he would make S₂ complex, as well, having a stative sentence as its subject and an abstract verb INCHOATIVE as its predicate. (See (6) above.)) While this analysis explains the non-occurrence of reflexive clitics with augmentare, (18) does not seem to me to reflect the semantic value of the sentence. In my understanding of Italian augmentare, and of the English counterpart, increase, there is a true transitive reading not described by the causative structure of (18).

Which analysis is correct cannot be determined without a thorough discussion of the nature of transitive and intransitive structures, a discussion which would carry us beyond the scope of this paper.

2.2.4 Variations. There are some inchoative sentences in which the reflexive clitic is optional:

(19a) La gelateria (si) chiude troppo presto.

and, in some varieties of Italian,

(19b) La lezione (si) inizia alle nove.

There appears to be a strong correlation between these facts and the phenomenon of Unspecified NP Deletion (UNPD). (This is the rule which deletes unspecified objects of verbs such as mangiare, Mangio alle otto, but not tagliare, *Taglio prima di cena. Which verbs undergo UNPD is probably an idiosyncratic fact to be handled in the lexicon (see Chomsky 1965:87).) We see that chiudere is marked (-UNPD):

(20) *Chudiamo molto lentamente. (cf. Mangiamo molto presto.)
'We close very slowly.' 'We eat very early.'

except in one of its lexical meanings, that of closing a store:

(21) Chudiamo (il negozio) alle trè.
'We close (the store) at 3 o'clock.'

Likewise, it requires the reflexive clitic with inchoatives:

(22) La porta si chiude.
*La porta chiude.
'The door closes.'

However, here again with the lexical meaning of closing a store it is an exception, optionally appearing with the reflexive clitic, as in (19a).

Likewise, in most varieties of Italian, *iniziare* is (-UNPPD) (cf. **Iniziamo* 'Let's initiate') and requires a reflexive clitic in inchoatives (cf. **La lezione inizia*). However, in at least one variety of Italian *iniziare* is (+UNPPD) (cf. *Iniziamo!*) and in this variety *iniziare* may optionally take a reflexive clitic in inchoatives, as in (19b).

It appears that, while the optional rule deleting the NP underlying the reflexive clitic may not be identical to UNPD, it is at least correlated with this rule. Since UNPD is a rule applying only to transitive verbs, we have one more fact consistent with the analysis in (11).

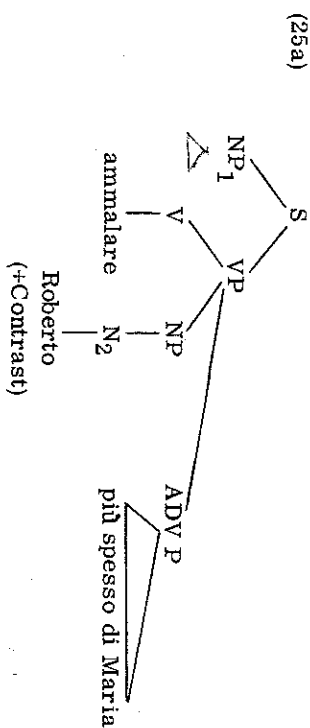
2.2.5 No non-clitic form. One problem our analysis must explain is why we never find a non-clitic form for the reflexives of inchoatives (**Roberto ammala sé*). First, we must note that non-clitic object pronouns occur usually only⁸ when they are assigned stress or contrast. Since stress and contrast are of primary importance to the meaning of a sentence, we assume that such features are present in the deepest level of any linguistic structure. In Italian, when an NP with contrast is moved, the contrast goes with it (using intonation as a signal for contrast, we have underlined the element receiving the highest intonation peak):

- (23a) *Vedo il cane, non il gatto.*
'I see the dog, not the cat.'
(23b) *Il cane vedo, non il gatto.*
'The dog I see, not the cat.'

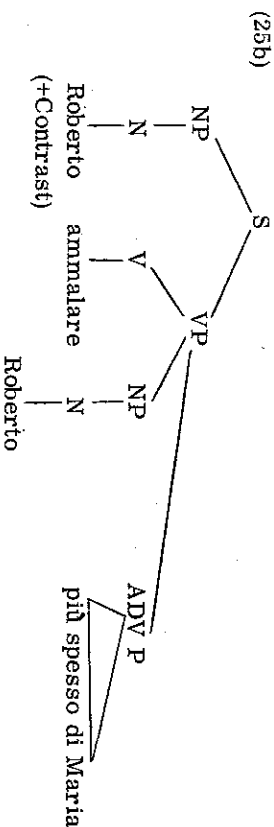
Let us now look at an inchoative sentence which has contrast in it:

- (24) *Roberto si ammala più spesso di Maria.*
'Robert gets sick more often than Mary.'

At some point, the underlying structure for (24) is:



(We do not detail the underlying structure for the comparative clause since the structure of comparatives is not at issue here.) COPY moves N_2 into the NP_1 node, taking the feature of contrast with it, and leaving behind a copy:



REFLEXIVE applies generating only clitic reflexives, since the derived NP object can never have the features of contrast or emphasis.

3.0 Inventory

A list of verbs which can occur in the inchoative derivation shown in (11) would include the following but certainly would include many others as well:

(26a)	accorciare	annebbiare
	accumulare	annoiare
	addormentare	annuvolare
	adirare	arrabbiare
	allungare	arricchire
	ammalare	assopire
	ammanzare	atterrire
	ammorbire	

(26b)	illanguidire	infiammare
	impadronire	ingrassare
	impaurire	innamorare
	impazientire	intepidire
	imperialire	invogliare
	imporre	irritare
	incollerire	istupidire
	inepiccare	
(26c)	agitare	gonfiare
	alterare	guarire
	amareggiare	meravigliare
	commuovere	offendere
	disgustare	rafforzare
	disinteressare	rattristare
	divertire	spaventare
	emozionare	

4.0 Extensions

The phenomenon of inchoative is not isolated. Middle voice sentences such as *Gli appartamenti in quella zona della città si affittano molto presto* 'The apartments in that area of town rent very quickly' have a similar analysis. For further discussion of this point see Napoli Furrow (1973).

5.0 Conclusion

We have shown that inchoative is a productive syntactic process of Italian. The deep structure of inchoative sentences is a simplex S with an empty subject node (or no subject node at all); the surface subject originates in deep object position; and REFLEXIVE produces the proper clitic after COPY has moved the object NP into subject position and formed a copy.

NOTES

¹I would like to thank Paolo Valesio, Dwight Bolinger, Michael Freeman, David Nasjletti, Judith Aissen, and Emily Norwood for their suggestions and criticisms.

²It is also logically possible that this T is pre-cyclic. However, it must be ordered after at least one other pre-cyclic rule, that of Predicate Raising (PR) found with matrix verbs such as *fare*, *lasciare*, and *apertamente* with many verbs of perception (see Aissen 1972). Since there are very few pre-cyclic rules known and since the question of

pre-cyclic rules being ordered with respect to each other has not even been posed, it would be very surprising if this rule were both pre-cyclic and ordered after PR. Also, such an ordering has many of the disadvantages of the PS-rule discussed below.

³Actually, the proper PS-rule is VP → Clitic V (NP) (NP) (ADV) etc., since the clitic is attached to the V, not to the VP. However, this PS-rule has the same disadvantages as (6) in the text above.

⁴Note that we have already discarded the possibility that *la porta* is both deep subject and deep object of *aprire* (cf. (2) and (7)).

⁵In (10) as in all other examples in this paper, the surface subject must be read as a nominative. A test for such a reading is pronominalization, where cases are overtly marked. If, instead of nominative, the initial NP is read as an accusative in (10), we have a different structure from inchoatives, the indefinite *si* structure. For a discussion of indefinite *si* sentences, see Napoli Furrow (1973).

⁶Lakoff (1968) has argued that selectional restrictions between agents and instrumental phrases are not valid. Bresnan (1969) has rebutted this argument. We are assuming Bresnan's position.

⁷Whether inchoatives have empty delta subject nodes or no subject node at all in deep structure will not be determined here.

⁸There are cases where non-emphatic and non-contrastive pronouns in object position may not cliticize. See Wanner (1972) for a discussion of these cases. None of them, however, are relevant to inchoatives.

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