University of Venice

WORKING PAPERS IN LINGUISTICS

Vol. 10, n. 1

2000

edited by Laura Brugè

Centro Linguistico Interfacoltà

Università Ca' Foscari di Venezia

S.Croce 2161 - 30135 Venezia

Tel. 39-41-5241642, Fax 39-41-718259

Table of Contents:

To appear in Eser Erguvanlı-Taylan (ed.) *Verb in Turkish: the core element of clause structure*, Benjamins, Amsterdam

A Note on Mood, Modality, Tense and Aspect Affixes in Turkish[1]

Guglielmo Cinque
University of Venice

The limited goal of this contribution is to analyse the order of the mood, modality, tense and aspect, verbal suffixes of Turkish in the light of my (1999) proposal on the functional structure of the clause. My hope is that the exercise, besides explaining away certain apparent counterexamples to a rigid hierarchy of functional projections, may shed a partly new light on this area of the grammar of Turkish.

In Cinque (1999), I examined the relative order of free (particles) and bound (suffixes) grammatical morphemes corresponding to mood, modality, tense, aspect and voice distinctions in the languages of the world. The recurrent picture that one finds in this domain is that they not only are rigidly ordered with respect to each

---

[1]. This work would not have been possible without the precious and patient help of Jaklin Kornfilt, both in terms of native judgments and of linguistic advice. I acknowledge it here with much gratitude. I am also indebted to the audience of the workshop on "Clause Structure in Turkish", held at Boğaziçi University (Istanbul) on April 29-30 1999, and in particular to Ayhan Aksu-Koç, Eser Erguvanlı-Taylan, Aslı Göksel, and Engin Sezer for questions and suggestions. Eser Erguvanlı-Taylan and Jaklin Kornfilt also read a previous version of this article, providing very useful comments.

other (as partly anticipated in such works as Bybee 1985, Foley and Van Valin 1984, and Dik 1989), but that each of the mood, modality, tense, aspect, and voice categories is made up, at a finer level, of a number of distinct heads, which also appear to be rigidly ordered.

The striking match between the order of these grammatical heads and the order of the corresponding adverbs was further taken there to suggest a rich and articulated functional structure above the lexical VP of the clause, where each adverb class corresponds to a mood, modality, tense, aspect or voice head in a one-to-one fashion (as does the specifier to a head in a classical X-bar structure - Chomsky 1970, Kayne 1994).

The order of such X-bar projections is approximately that shown in (1):[2]

(1) $\text{MoodP}_{\text{speech act}} > \text{MoodP}_{\text{evaluative}} > \text{MoodP}_{\text{evidential}} > \text{ModP}_{\text{epistemic}} > \text{TP}_{\text{Past}} > \text{TP}_{\text{Future}} > \text{MoodP}_{\text{irrealis}} > \text{TP}_{\text{anterior}} > \text{ModP}_{\text{alethic}} > \text{AspP}_{\text{habitual}} > \text{AspP}_{\text{repetitive(I)}} > \text{AspP}_{\text{frequentative(I)}} > \text{ModP}_{\text{volition}} > \text{AspP}_{\text{celerative(I)}} > \text{AspP}_{\text{terminative}} > \text{AspP}_{\text{continuative}} > \text{AspP}_{\text{perfect}} > \text{AspP}_{\text{retrospective}} > \text{AspP}_{\text{proximative}} > \text{AspP}_{\text{durative}} > \text{AspP}_{\text{progressive}} > \text{AspP}_{\text{prospective}} > \text{AspP}_{\text{inceptive(I)}} > \text{ModP}_{\text{obligation}} > \text{ModP}_{\text{ability}} > \text{AspP}_{\text{frustrative/success}} > \text{ModP}_{\text{permission}} > \text{AspP}_{\text{conative}} > \text{AspP}_{\text{completive(I)}} > \text{VoiceP} > \text{AspP}_{\text{repetitive(II)}} > \text{AspP}_{\text{frequentative(II)}} > \text{AspP}_{\text{celerative(II)}} > \text{AspP}_{\text{inceptive(II)}} > \text{AspP}_{\text{completive(II)}} > \text{V}$

Turkish is particularly interesting from this perspective in that it would seem to provide a number of striking counterexamples to the claim that functional heads (and their corresponding morphemes) are rigidly ordered with respect to each other. So, for example, the modal suffix *-(y)Abil-* appears at first sight to be freely ordered with respect to the negative morpheme *-mA*. Cf. (2):[3]

(2) a. oku-**ya-ma**-m (Kornfilt 1997,375)
read-**ABIL-NEG**-1sg 'I am unable to/ not permitted to read'

---

[2]. Although no language (with the possible partial exception of Eskimo-Aleut languages) displays the entire array of functional heads, they do display the entire array of functional specifiers (AdverbPhrases), thus pointing to the universality of such structure.

[3]. The *bil* part of the suffix deletes in front of negation. Cf. Kornfilt (1997,374f) for discussion.

b. oku-**ma-yabil**-ir-im (Kornfilt 1997,375)
read-**NEG-ABIL**-AOR-1sg 'I might not read; it is possible that I do not read'

At a closer look, however, the modal suffix in (2)a and b differ not only in scope with respect to negation, but also in meaning. When it is to the left of the negative morpheme, -(*y*)*Abil-* is interpreted as a 'root' modal, with the meaning of "ability" or "permission". When it is to the right, it is instead interpreted as an alethic modal, referring to "possibility". This suggests that the same suffix can occur in two different functional heads, one higher than the (*-mA*) negation, corresponding to the $ModP_{alethic}$ of (1), and one lower, corresponding to either the $ModP_{ability}$ or $ModP_{permission}$ of (1).
This is confirmed by the fact, noted in Kornfilt (1997,375), that the two -(*y*)*Abil-* suffixes can occur simultaneously, separated by the suffix *-mA*:[4]

(3) oku-**ya-ma-yabil**-ir-im
read-**ABIL-NEG-ABIL**-AOR-1sg
'I might be unable to read; it is possible that I shall be unable to read'

So far, then, Turkish gives evidence for the order of functional heads shown in (4):

(4) $Mod_{ALETHIC} > NEG > Mod_{ABILITY} (> V)$

The possibility for a morpheme to fill two different slots (functional heads), with partly different meanings (here -(*y*)*Abil-*, with the meaning of POSSIBILITY and

---

4. This order is interestingly matched (in the expected mirror image form) by the order of alethic possibility modals and root (ability/permission) modals in such double modal varieties as Hawick Scots:

(i) He'll **might could** do it (Brown 1992,75)
FUT **POSSIB ABIL** V

In both cases, the ability (/permission) modal head appears to be closer to the verb (stem) than the possibility modal head.

ABILITY/PERMISSION, respectively), is not unprecedented (see Cinque 1998 for other cases with suffixes, and adverbs).

Before seeing other such cases in Turkish itself, let us procede and try to establish the relative ordering of a number of other suffixes in this language. Granting the essential correctness of Baker's (1985,1988) Mirror Principle, I will assume that an outer suffix corresponds to a functional head higher than that corresponding to an inner suffix, disregarding the insertion of auxiliary verbs to bear (outer) suffixes that for morphological reasons cannot stack onto some inner suffixes, as is the case with POSSIBILITY -(*y*)*Abil-* and PERFECT *-miş* in (5):[5]

(5) Mary John-un evlen -miş ol-**abil-eceğ** -in -i söyl-üyor
(Yavas 1980,77)
M. J.-gen get married PERF be-**may/can-FUT**-poss-acc say-PROG
'Mary says that John may have gotten married (by now)'

Here, -(*y*)*Abil-* cannot be stacked onto-*mIş* , for reasons that remain to be understood; hence the insertion of the auxiliary to support the outer suffix which otherwise would remain stranded. Ignoring the complication introduced by the insertion of auxiliaries, (5) provides evidence for the order V-(PERFECT)-POSSIBILITY-FUTURE, which in turn suggests that FUTURE tense is higher than ALETHIC modality (which is higher than PERFECT aspect).[6] Adding this relative order to (4), we get the order in (6) (I return below to the position of PERFECT aspect):

(6) $FUT > Mod_{ALETHIC} > NEG > Mod_{ABILITY} (> V)$

Like the *-mA-* negation suffix, also the PROGRESSIVE aspect suffix *-(I)yor-*, appears to intervene between POSSIBILITY -(*y*)*Abil-* and ABILITY/PERMISSION

---

5. See Kornfilt (1996) for arguments that, even in the case of certain suffixes apparently stacked onto another suffix, there is an overt, -*y*-, or abstract, -0-, copula, separating them and supporting the outer suffix.

6. Note that the order FUTURE > ALETHIC POSSIBILITY is also overtly displayed in the Hawick Scots example (4).

-(*y*)*Abil-*, for it follows ABILITY/PERMISSION -(*y*)*Abil-* (cf. (7a)), but it precedes POSSIBILITY-(*y*)*Abil-* (cf. (7)b), and is found between the two, when these cooccur (cf. (7)c):

(7) a. oku-**yabil-iyor**-um (Kornfilt 1997,374)
read-**ABIL-PROG**-1sg 'I am being able to read'
b. oku-**yor** ol-**abil**-ir (Kornfilt, personal communication)
read-**PROG** be-**ABIL**-AOR 'he might be reading'
c. oku-**yabil-iyor** ol-**abil**-ir (Kornfilt, personal communication)
read-**ABIL-PROG** be-**ABIL**-AOR 'he might be being able to read'

As shown by (8), *-(I)yor-* follows the *-mA-* negation suffix (which, by the Mirror Principle, indicates that it is located in a head higher than the negative head):

(8) koş-**mu-yor** (van Schaaik 1994,40)
run-**NEG-PROG** 'he isn't running'

The relative orders of Turkish suffixes seen so far are thus evidence for the order of heads shown in (9):

(9) FUT > $Mod_{ALETHIC}$ > $Asp_{PROGRESSIVE}$ > NEG > $Mod_{ABILITY}$ (> V)

Similarly, the PERFECT aspect suffix *-mIş* appears to be outside ABILITY/PERMISSION -(*y*)*Abil-* ((10)a)and inside POSSIBILITY -(*y*)*Abil-* ((10)b), and is found to separate them when they cooccur ((10)c):

(10) a. oku-**yabil-miş** ol-ur (Kornfilt, personal communication)
read-**ABIL-PERF** be-AOR 'he has been able to read'
b. oku-muş ol-abil-ir (Kornfilt, personal communication)
read-**PERF** be-**ABIL**-AOR 'he might have read'
c. oku-**yabil-miş** ol-**abil**-ir (Kornfilt, personal communication)
read-**ABIL-PERF** be-**ABIL**-AOR 'he might have been able to read'

The PERFECT aspect suffix *-mIş* , like the PROGRESSIVE aspect suffix *-(I)yor-*, occurs outside the negative suffix *-mA-*. See (11):

(11) Türk-leş-tir-il-**me-miş** -ler-den-siniz (van Schaaik 1994,39)
turk-become-CAUS-PASS-**NEG-PERF**-pl-abl-2p
'You are of those who didn't have themselves been turkified'

It thus seems to fall, like *-(I)yor-*, between the modal of alethic possibility and negation:

(12) FUT > $Mod_{ALETHIC}$ > $Asp_{PROGRESSIVE}$ > NEG > $Mod_{ABILITY}$ (> V)
$Asp_{PERFECT}$

We can ask what the relative order is between PERFECT aspect and PROGRESSIVE aspect. Quite generally, PERFECT aspect appears to be higher than PROGRESSSIVE aspect. This is shown directly by English ((13)a) and Temne ((13)b), among other languages, and (in the reverse order) by the serialization of the corresponding suffixes in Imbabura Quechua ((13)c):

(13) a. John has be**en** winn**ing** (English)
J. PRES **PERF PROG**
b. i tè **po yirè** ke-ko (Temne - cf. Cinque 1999,193)
I FUT **PERF PROG** go 'I will have been going'
c. shamu-**ju-shka**-ni (Imbabura Quechua - cf. Cinque 1999,163)
come-**PROG-PERF**-1sg 'I have been coming'

Turkish in this respect appears problematic. For one thing, the location of PERFECT aspect *-miş* after PROGRESSIVE aspect *-(I)yor* is given as rather marginal by Yavaş (1980,63) (see (14)a); secondly, the opposite order between the two is judged as perfectly acceptable by Kornfilt (1997,363) (see (14)b):

(14) a. ??John dün çaliş - **ıyor** ol-**muş** ol-malı (Yavaş 1980,63)
J. yesterday work-**PROG** be-**PERF** be-must 'J. must have been working yesterday'
b. Hasan böylelikle yarış-i kazan-**mış** ol-**uyor**-du
(Kornfilt 1997,363)
H. thus competition-ACC win-**PERF** be-**PROG**-PAST

'Hasan was thus being the winner of the competition'

Whatever the reasons for the marginality of (14)a, it appears that the order V-*mIş* Aux-*(I)yor* of (14)b receives an interpretation which is rather different from the one expected. Kornfilt (1997,363) glosses (14)b as "...was being the winner", rather than "...was having won...", with what looks like a resulting state reading.

I would like to propose that *-mIş* is actually ambiguous between a (marginal) PERFECT aspect interpretation, when it is located higher than PROGRESSIVE aspect (as in (14)a), and a pure RESULTATIVE aspect interpretation, which is lower than PROGRESSIVE aspect (in fact one of the lowest heads, perhaps). In (15), a sentence given by Kornfilt (1997,363), the two (PERFECT-*mIş* and RESULTATIVE *-mIş*) are found to (marginally) cooccur:[7]

(15) ??Hasan böylelikle yariş-ı kazan-**mış** ol-**muş** -tu
(Kornfilt 1997,363)
H. thus competition-ACC win-**RES(?)** be-**PERF**-PAST
'H. had thus become the winner of the competition'

If correct, then, the order of heads displayed by Turkish so far is:

(16) FUT > $Mod_{ALETHIC}$ > $Asp_{PERFECT}$ > $Asp_{PROGRESSIVE}$ > NEG > $Mod_{ABILITY}$ (> V)[8]
$Asp_{RESULTATIVE}$

---

[7]. The marginality of (15) is perhaps related to that of (14)a. Yavaş and Kornfilt appear to give to these sentences the same grammaticality judgment (?? rather than *).

[8]. The fact that the progressive form of a resulting state is possible in Turkish but not in English is perhaps to be related to the fact that in Turkish the *-(I)yor* form is possible with stative verbs as well (cf. (i)); a fact which may indicate that it is more likely a CONTINUOUS aspect rather than a PROGRESSIVE aspect suffix, as Kornfilt (1997,357) conjectures.

(i) Hasan fazla çabuk konuş-tuğ-un-u bil-iyor-du (Kornfilt 1997,357)
H. too fast talk-Fnom-3sg-Acc know-PROG-PAST
'H. knew that he was speaking too fast'

-Miş has another well-known interpretation in Turkish; that of a reportive PAST:[9]

(17) Hasan dün opera-ya git-**miş**
H. yesterday opera-DAT go-**REP.PAST**
'H. reportedly went to the opera yesterday'

There is some evidence that under this interpretation it occupies a functional head which is higher than that occupied when it has the PERFECT (and, a fortiori, the RESULTATIVE) aspect interpretation.
In its 'reportive (PAST) tense' interpretation it follows the FUTURE tense suffix ((18)a);[10] in its PERFECT aspect interpretation, it precedes it ((18)b):

(18) a. John Türkiye-ye gid-**ecek-miş** (Yavaş 1980,41) (reported)
J. T.-dat go-**FUT-REP** 'Reportedly, John will go to Turkey'
b. John hafta-ya tez-in-i bitir-**miş** ol-**acak** (Yavaş 1980,74)
J. week-Dat thesis-Poss-Acc finish-**PERF** be-**FUT**
'J. will have finished his thesis (by) next week (*Apparently/reportedly J. will finish..)'

---

9. As in other languages, the same form can be used to denote the inferential character of the assertion, or surprise/unexpectedness (its 'admirative', i.e. evaluative, usage). See (i):

(i) a. John bugün çalis-iyor-**muş** (Yavaş 1980,44) (inferential, or reportive)
J. today work-PROG-**INFER** 'Apparently, John is working today'
b. Ne de çok elbise-m var-**miş**! (Yavaş 1980,47) (surprise)
what also a lot dress-my exist-**UNEXP** 'How many dresses I have!'

10 The future in the past (or "conditional") form is also used in Italian to convey a report:

(i) Gianni sarebbe morto ieri
G. would have died (future in the past) yesterday 'They say that G. died yesterday'

More generally, as Kornfilt (1997) notes, when "*-mIş* for the reported past is the first suffix in a morphological sequence including the conditional form [and other tense markers (p.546,fn59)], its function is that of perfective aspect rather than that of a tense marker" (p.344). Each usage, then, is apparently possible only relatively to a specific position in the sequence of suffixes. A case in point is (19), from Yavaş (1980,62):

(19) John çalis-**mış-tı**
J. work-**PERF-PAST** 'J. had worked (*Apparently/reportedly J. worked)'

In sum, *-mIş* can either encode resultative aspect, perfect aspect, or reportive/inferential/evaluative PAST. For the latter usage, it is tempting to propose that *-mIş* is generated in T_{PAST} and then raised to either $Mod_{EPISTEMIC}$ (inferential), or $Mood_{EVIDENTIAL}$ (reportive), or $Mood_{EVALUATIVE}$ (surprise/unexpectedness). If so, Turkish would give evidence for the higher functional heads of (1) shown in (20), which combined with (16) gives (21):

(20) $\ldots Mood_{EVALUATIVE} > Mood_{EVIDENTIAL} > Mod_{EPISTEMIC} > T_{PAST} \ldots$

(21) $Mood_{EVALUATIVE} > Mood_{EVIDENTIAL} > Mod_{EPISTEMIC} > T_{PAST} > T_{FUTURE} > Mod_{ALETHIC} > Asp_{PERFECT} > Asp_{PROGRESSIVE} > NEG > Mod_{ABILITY} / Asp_{RESULTATIVE} (> V)$

To recapitulate, both the *-abIl* and the *–mIş* suffixes can apparently occupy, even simultaneously, different slots (heads), each corresponding to a distinct function:[11]

---

[11]. From (23) and (24), one should expect the marginal possibility of something like (i), where the three *-mIş* occur simultaneously. Jaklin Kornfilt (personal communication) tells me that for her (i) is indeed possible with the same grammaticality status as (24):

(i) ??Hasan böylelikle yarış-ı kazan-**mış** ol-**muş-muş**
H. thus competition-ACC win-**RES(?)** be-**PERF-REP.PAST**
'H. had reportedly thus become the winner of the competition'

(22) oku-**yabil**-miş ol-**abil**-ir (Kornfilt, personal communication)
read-**ABIL**-PERF be-**POSSIB**-AOR 'he might have been able to read'

(23) Rejim yap-**mış-mış** (Yavaş 1980,68)
diet make-**PERF-REP.PAST** 'Reportedly, he dieted'

(24) ??Hasan böylelikle yarış-i kazan-**mış** ol-**muş**-tu
(Kornfilt 1997,363)
H. thus competition-ACC win-**RESULT(?)** be-**PERF**-PAST
'H. had thus become the winner of the competition'

Other suffixes of Turkish appear to occupy different positions, depending on the function they perform.
One of these is the (non reportive) PAST suffix *-DI,* which in addition to this usage apparently has (pace Yavaş 1980,chapter 2) a usage as an Anterior Tense marker (Aksu-Koç 1988,20; Korfilt 1997,349).[12] The two can, in fact, cooccur, yielding the pluperfect interpretation:[13]

---

[12]. "Examples like [*Hasan balığı ye-di* 'H. ate the fish/has eaten the fish'] are systematically ambiguous between a simple past reading (the first translation) and a present perfect reading (the second translation)" (Kornfilt 1997,349, who also refers in this connection to Lewis 1975,127 and Johanson 1971,67).

[13]. The 'distant past' interpretation which can be imposed to *-DI* + *-DI* sequences, as in (i) (Yavaş 1980,16) is not incompatible with taking *-DI* to be both a Past Tense and an Anterior Tense morpheme. The Italian Pluperfect has a similar occasional 'distant past' interpretation (*Avevo pensato ti facesse piacere* 'I thought it would please you'). Other cases where the same morpheme expresses both Past Tense and Anterior Tense are found in Korean (Cinque 1999,53), and in Sranan and Haitian Creole (Cinque 1999,61ff). Cf.also English *-ed.*

(i) Bir zaman-lar John ile tanış-tı-y-dı-m
One time-pl. J. with meet-*DI*- cop-*DI*-1sg 'I once met John'

(25) Hasan dün saat beş-te ödev-in-i bit-ir-**di**-y-**di** (Kornfilt 1998)
H. yesterday o'clock five-LOC assignment-3sg-ACC finish-CAUS-**ANT**-y-**PAST**
'H. had finished his assignment yesterday at five o'clock'

Some indications exist that *-(y)AcAK* too may be ambiguous between two functions: a pure Future Tense interpretation ("will") and a Prospective Aspect interpretation ("be about to/almost"), with, as a consequence, a different location in the hierarchy of (1). Indications to this effect may be I) the double translations that are often assigned to the morpheme (cf. (26)); II) the unequivocal Prospective Aspect rendering of *-(y)AcAK* when it is used as a participle not allowing stacking of *-DI* (cf. (27)b), vs. the Future Tense reading when it allows stacking of *-DI* ((279a)); and III) the sequences "ecek ol-muş–tu" and "ecek ol-uyor" found by Gerjan van Schaaik in his corpus (and pointed out by him in his talk - van Schaaik 1999).[14]

(26) Yarin yağmur yağ-**acak** (cf. Yavaş 1980,89)
tomorrow rain fall-**FUT** or **PROSP**
'Tomorrow it will/is going to rain'

(27) a. Dün gel-**ecek-ti** (Yavaş 1980,23)
yesterday come-**FUT-PAST**
'He was going to come yesterday'

b. Hasan kapı-yı aç-**acak** ol-**du** (Kornfilt 1997,341)
H. door-ACC open-**FUT-PROSP** be/become-**PAST**
'Hasan was about to open/almost opened the door'

---

[14] In "ecek ol-muş-tu" and "ecek ol-uyor", *-(y)AcAK* appears lower than PERFECT aspect and PROGRESSIVE aspect, respectively. These are positions inaccessible to a pure (or absolute) FUTURE Tense. The second (of which he found 4 examples) is particularly telling as Cinque (1999,75) documents the order PROGRESSIVE aspect > PROSPECTIVE aspect (and their adjacency) in many languages. Also see Cinque (1999,209n63) for languages in which the FUTURE Tense morpheme is identical to the PROSPECTIVE aspect morpheme. It could turn out, judging from II) and III) in the text, that participial *-(y)AcAK*, which does not allow stacking of other suffixes, is the form specialized for Prospective Aspect.

Similarly (if not more clearly), the suffix *-(y)-sA* appears to be ambiguous between two functions: one as a conditional complementizer, and one as an irrealis marker. An indication that, depending on interpretation, it fills different positions in the hierarchy of (1) is given by the order of *-(y)-sA* with respect to other suffixes whose position can be determined unambiguously. So, for example, Conditional *-(y)-sA* follows the Reportive PAST suffix (cf. (28)), which follows, among others, the Aspect suffixes and the absolute Future Tense suffix. This suggests that the corresponding functional head is higher than at least T_{PAST}:

(28) oku-yor-muş-**sa**-m (Kornfilt 1997,367)
read-PROG-REP.PAST-**COND**-1sg
'If I am/was said to be reading'

When, on the other hand, *-(y)-sA* precedes T_{PAST} (as in (29)), its interpretation is that of a counterfactual conditional, or a wish referring to the past (cf. Kornfilt 1997,368), which leads me to conjecture that it occupies the lower $Mood_{IRREALIS}$ head:[15]

(29) a. oku-**sa**-y-mış (Kornfilt 1997,368)
read-**COND**-cop-REP.PAST
'They say that if he were to read' or 'They say 'If only he would read!''

---

[15]. Alternating with *-(y)-sA* in the position preceding T_{PAST} is the optative suffix *-(y)A* , another Irrealis suffix:

(i) oku-**ya**-y-dı–m (Kornfilt 1997,372)
read-**OPT**-y-PAST-1sg 'Would that I had read'

As Kornfilt notes (p.372), (i) can be used also in place of (29)b, and with the same interpretation as (29)b. Eser Erguvanlı-Taylan (personal communication) informs me that the structuralist tradition also recognized two separate uses of *-(y)-sA*. *-sA*, for what I called "Irrealis", and *-(y)-sA*, for what I called "Conditional".

b. oku-**sa**-y-dı–n (Kornfilt 1997,368)
read-**COND**-y-PAST-2s
'Had you read/if only you had read!'

Another suffix that appears to have various (related) usages is *-mAlI,* which ranges from a meaning of obligation ((30)a), to a meaning of alethic necessity ((30)b), to an epistemic meaning ((30)c):[16]

(30) a. oku-malı-yım
read-OBLIG-1sg 'I have to read'
b. John hafta-ya evlen-mis ol-mali (Yavaş 1980,76)
J. week-DAT marry-PERF be-NECESS
'John must have gotten married (by) next week'
c. Hasan orada ol-malı (Kornfilt 1997,376)
H. there be-EPISTEM
'Hasan must be there'

What remains to be seen is whether it occupies one or more positions, depending on interpretation. The position of the suffix in its alethic reading of necessity appears to fall in between $Mood_{irrealis}$ and $Asp_{perfect}$ as expected from (1). See the contrast between (31)a and b:[17]

---

[16]. In (30)b, it can also have an epistemic interpretation.

[17]. The 'aorist' suffix *-(A)r,* which expresses the generic (and habitual) present, was not discussed here, as it is unclear to me which head, it can fill. From (i)a-b, it would seem it can occupy a head between T_{PAST} and $Mod_{ALETHIC}$ of Possibility (but it could be that it can occupy more than one):

(i) a. Hasan piyano çal-**ar**-dı
H. piano play-**AOR**-PAST
'Hasan used to play the piano'
b. John evlen-miş ol-abil-**ir** (Yavaş 1980,76)
J. get married-PERF be-POSSIB-**AOR**
'John may have gotten married (by now)'

(31) a. ?Git-miş ol-malı ol-sa-ydı (Kornfilt, personal communication)
go-PERF be-NECESS be-IRR-PAST
'Had s/he have to have gone'

b. *Git-mis ol-sa ol-mali–ydi (Kornfilt, personal communication)

If the above interpretation of the facts is correct, there may be no real reason to conclude from the apparent variable ordering of certain suffixes in Turkish that "the order among inflectional suffixes is slightly flexible [while] grammatical function changing affixes are rigidly fixed" (in the partial order: V-RECIPROCAL-CAUSATIVE-PASSIVE)(Göksel 1993, 18). Functional heads are rigidly fixed, though one and the same morpheme, by filling different heads (with concomitantly different functions), may give the impression of changing places.

References

Aksu-Koç, Ayhan (1988) *The Acquisition of Aspect and Modality. The case of past reference in Turkish.* Cambridge, Cambridge University Press

Baker, Mark (1985) "The Mirror Principle and Morphosyntactic Explanation", *Liguistic Inquiry*, 16.373-415

Baker, Mark (1988) *Incorporation.* University of Chicago Press, Chicago.

Brown, Keith (1992) "Double Modals in Hawick Scots", in Peter Trudgill and J.K.Chambers (eds.) *Dialects of English: Studies in Grammatical Variation*, Longman, London, pp.74-103

Bybee, Joan (1985) *Morphology. A Study of the Relation between Meaning and Form.* Benjamins, Amsterdam

Chomsky, Noam (1970) "Remarks on Nominalization", in Roderick A. Jacobs and Peter S. Rosenbaum (eds.) *Readings in English Transformational Grammar*, Ginn and Co., Waltham, Mass., pp.184-221

Cinque, Guglielmo (1998) "'Mobile' Suffixes and Clause Structure", in *Chomsky Celebration Project*, MIT Press website (http://mitpress.mit.edu/celebration), pp.1-8

Cinque, Guglielmo (1999) *Adverbs and Functional Heads. A Cross-linguistic Perspective*. New York, Oxford University Press

Dik, Simon (1989) *The Theory of Functional Grammar.Part I: The Structure of the Clause*. Foris, Dordrecht

Erguvanlı-Taylan, Eser (1986) "Some Aspects of Negation in Turkish", in A.Aksu-Koç and E.Erguvanlı-Taylan, (eds.) *Proceedings of the Turkish Linguistics Conference*. Istanbul, Boğaziçi University Publications, no.400, pp.159-177

Göksel, Aslı (1993) *Levels of Representation and Argument Structure in Turkish*. Ph.D. Dissertation, SOAS, University of London

Johanson, L. (1971) *Aspekt im Türkischen*. Studia Turcica Upsaliensia 1, Upsala, Acta Universitatis Upsaliensis

Kayne, Richard (1994) *The Antisymmetry of Syntax*. Cambridge, Mass., MIT Press

Kornfilt, Jaklin (1996) "On Some Copular Clitics in Turkish", in A.Alexiadou et al. (eds.) *ZAS Papers in Linguistics*, vol.6, Berlin, Zentrum f¸r Allgemeine Sprachwissenschaft, pp.96-114

Kornfilt, Jaklin (1997) *Turkish*. Routledge Descriptive Grammars. Routledge, London

Kornfilt, Jaklin (1998) "The expression of tense, aspect and mood in Turkish", handout of a talk given at the University of Venice, 12 November 1998

Lewis, G.L. (1975) *Turkish Grammar* (corrected edition; originally published in 1967), Oxford University Press, Oxford

Nilsson, Birgit (1991) "Turkish Semantics Revisited", in H.Boeschoten and L.Verhoeven (eds.) *Turkish Linguistics Today*. Leiden, Brill, pp.93-112

Schaaik, Gerjan van (1994) "Turkish", in P.Kahrel and R.van den Berg (eds.) *Typological Studies in Negation*, Amsterdam, Benjamins, pp.35-50

Schaaik, Gerjan van (1999) "Tense, Aspect, and Modality in Periphrastic Constructions of Turkish", paper presented at the workshop "Clause Structure of Turkish" , Boğaziçi University (Istanbul), April 29-30 1999

Slobin, Dan I. and Ayhan Aksu (1982) "Tense, aspect and modality in the use of the Turkish evidential", in Paul J. Hopper (ed.) *Tense-Aspect: Between Semantics and Pragmatics*, Amsterdam, Benjamins, pp. 185-200

Yavaş, Feryal (1980) *On the Meaning of Tense and Aspect Markers in Turkish.* Ph.D. Dissertation, University of Kansas

Ways of Terminating

Alessandra Giorgi and Fabio Pianesi
University of Venice – IRST-ITC Trento

1. Basic Facts

The notion of telicity arises in connection with sentences such as those in (1)–(2), which seem to convey the idea that the relevant events reach a sort of privileged end point, or *telos*:

(1) John ate an apple
(2) John ran home.
(3) John reached the top.
(4) John died.

In (1), it is not only the case that the event in question (the eating of the apple) is finished. It must also be true that a certain goal, the telos or *terminus ad quem*, has been attained—e.g., that the whole apple has been consumed in the course of the eating. Similarly, the truth of (2) does not only require that the subject was involved in an activity of running directed towards home. It is also necessary that the telos—namely, John's being at home—is obtained by virtue of that very running. Concerning (3) and (4), it may be observed that although they are similar to (1) and (2) in that they entail that a telos has been attained, they differ since there is no explicit mention of an activity leading to the relevant telos. For if it is obviously true that the telos of (1) was achieved by eating, it is meaningless to maintain that the telos of (3) and (4) are attained by *reaching* or by *dying*.

University of Venice
Working Papers in Linguistics
Vol. 10; n.1; 2000

Telos seem to be "privileged" end points of events in the following sense. If we are told (2), we do not only know that the event of running performed by John and directed towards his own place got to an end. We also know that that event could not have possibly continued any further. On the other hand, there are infinitely many ways an event of a similar kind could have finished: John might have stopped running halfway home, almost close to home, far away from home, etc. In each case a continuation (until the telos 'John is at home' is reached) seems to be possible.

Atelic sentences contrast with telic ones since they do not seem to involve privileged end points:

(5) John ate apples.
(6) John ate.
(7) John ran.
(8) John pushed the cart.

As in (1)–(4), these examples are about finished events. However, there is a sense in which the reported events in (5)–(8) might well have continued: John might have eaten more apples, he might have ran a little longer, he might have pushed the cart a lot further. In this sense, the notion of atelicity does not simply capture the fact that, e.g., in (5) no telos is specified. The point seems to be that a telos for (5) cannot even be envisaged.

This intuitive characterisation of the telic/atelic distinction can be given firmer empirical grounds by resorting to the well-known *for-X-time/ in-X-time* adverbial test. It can be observed that sentences, which have been classed as telic, can be modified by *in-X-time* adverbials while rejecting *for-X-time* ones.

(9) John ate an apple in/ *for ten minutes.
(10) John ran home in/ *for ten minutes.
(11) John reached the top in/ *for ten minutes.
(12) John died in/ *for ten minutes.

Conversely, atelic sentences admit *for-X-time* adverbials and yield infelicitous results with *in-X-time* ones:

(13) John ate apples #in/ for ten minutes.
(14) John ate #in/ for ten minutes.
(15) John ran #in/ for ten minutes.
(16) John pushed the cart #in/ for ten minutes.

Finally, the telic/atelic distinction is affected by the nature of the arguments the verb combines with. Thus (9), where the direct object is countable, is telic, whereas (13), with a bare plural, is atelic. Similarly, (10) with a prepositional locative phrase is telic, whereas (15), where such a phrase is missing, is atelic.

The *in-X-time/ for-X-time* adverbial test seems to be a rather secure basis for telling telic and atelic sentences apart. Extending it to languages other than English, and to tenses other than the English simple past, yields interesting results. Thus, consider the Italian imperfect tense. When used with eventive predicates, this verbal form is usually ambiguous between a habitual/generic reading and a factual one:

(17) (Alle tre) Mario mangiava una mela.
(At three o'clock) Mario ate(IMPF) an apple.

Depending on the context, (17) might convey that at a given past time Mario was involved in an ongoing event of eating an apple—a factual reading, also known as the *continuous* reading of the imperfect. Example (17), however, can also mean that it was an habit of Mario that, in given circumstances, he ate an apple (at the given time). The two readings can be disambiguated by either suitably fixing the time location, this way yielding only the continuous reading, as in (18a), or by means of an appropriate when-clause, which forces habituality, cf. (18b):

(18) a. Ieri alle cinque Mario mangiava una mela.
Yesterday at five Mario ate(IMPF) an apple.
b. Ogni volta che tornava a casa, Mario mangiava una mela.
Everytime he returned(IMPF) home, Mario ate(IMPF) an apple.

Now, the use of *in-X-time/ for-X-time* adverbials makes the factual, continuous reading unavailable, whereas, depending on the actional nature of the verbal predicate, the habitual reading might still be there:

(19) a. Mario mangiava (una mela) *in / *per un'ora.
Mario ate (IMPF) (an apple) in/ for an hour.

b. Mario correva (a casa) *in / *per un'ora.
Mario ran (home) in/ for an hour.

(For our purposes, the asterisks in (19) mark the unavailability of the factual reading.) Factoring habituality out, these facts seem to show that the telic/atelic distinction simply does not apply to continuous sentences with the imperfect. So what's wrong with the imperfect? A possibility is that the problem is caused by the aspectual value of the imperfect—namely, imperfectivity—a conclusion strengthened by the observation that the same pattern as in (19) can be reproduced with the Italian present tense, another imperfective tense:[1]

(20) a. Mario mangia (una mela) (*in / *per un'ora).
Mario eats (an apple) in/ for an hour.

b. Mario corre (a casa) (*in / *per un'ora).
Mario ran (home) in/ for an hour.

Whereas sentences with most present tense eventive predicates are grammatical in Italian, yielding a *continuous* reading, the same sentences become ungrammatical when featuring an *in-X-time* or *for-X-time* adverbial. Therefore, it seems possible to propose the following generalisation: the telic/atelic distinction does not apply to imperfective predicates. This, however, is not completely correct.

---

1. We haven't reproduced examples with achievement predicates because they are ungrammatical with the present tense, irrespectively of the presence of *in-time/ for-time* adverbials. This fact holds crosslinguistically and is but another manifestation of the intrinsic perfectivity of achievement predicates, which will be discussed below. For more on this point, and the reasons why perfective predicates are not available with the present tense, see Giorgi and Pianesi (1997; 1998).

2. Perfectivity/imperfectivity

In this section we defend the following two related theses:

(21) a. the notional counterpart of morphologically perfective verbal forms is *terminativity*;
b. the morphological distinction between perfective and imperfective verbal forms does not correspond to two distinct aspectual (notional) values, but to the presence vs. absence of the unique aspectual value of terminativity.

The first thesis is rather simple and, in a way, uncontroversial. Sticking, for the time being, to an intuitive notion of *terminativity*, Thesis (21a) states that the events referred to by perfective predicates are terminated. The second thesis, on the other hand, says that the distinction between perfective and imperfective verbal forms does not amount to that between terminated and non-terminated events. Rather, perfectivity/ imperfectivity distinguishes between verbal forms enforcing terminativity, and verbal forms that do not impose any requirement to this effect. Using a technical term, the perfective/imperfective distinction is a *privative* one.

Consider the following sentences:[2]

(22) a. (Alle tre) Mario mangiava una mela (e la sta mangiando tutt'ora).
(continuous, non terminated)
(At three) Mario ate (IMPF) an apple (and he is still eating it).
b. *(Alle tre) Mario mangiò/ha mangiato una mela (e la sta mangiando tutt'ora). (perfective, terminated)
(At three) Mario ate (SP)/ has eaten an apple, and he is still eating it.

In its continuous reading, it is possible to understand example (22a) as made true by an event *e* such that *e* was ongoing at a past time, and *e* is still ongoing at the utterance time. Such a possibility is not available if the imperfect tense of (22a) is

---

2. Here and in other examples we resort to both the Italian simple past (the so-called *passato remoto*) and to the present perfect as cases of perfective verbal forms. Perfect tenses deserve a more complex analysis than the one we are going to provide here. In particular, they have been argued to involve reference to the consequent state of the event described by the past participle (see Parsons 1990; Higginbotham 1994; Giorgi & Pianesi 1997). For our purposes, however, we can neglect the stative component since it is clear that the eventuality described by the past participle falls under the generalisation we are going to draw—namely, that they are terminated.

substituted with a perfective one, as in (22b): in this case the intuition is that the event has terminated at a past time and that it cannot continue at the utterance time. Similar effects can be obtained if the accomplishment predicates of (22) are substituted by activity ones:

(23) a. Questa mattina Mario spingeva il carretto, e lo sta spingendo tutt'ora.
This morning Mario pushed(IMPF) the cart, and he is still pushing it.

b. ?Questa mattina Mario ha spinto il carretto, e lo sta spingendo tutt'ora.
This morning Mario pushed the cart, and he is still pushing it.

While it is possible to understand (23a) as made true by one and the same event which is ongoing both at a past time and at the time of utterance, this is not the case with (23b). If accepted, (23b) requires two different events: a terminated event making the first clause true, and a non-terminated one, which is going on at the utterance time.[3]

These differences do not depend on the use of past tenses:

(24) *Domani mattina Mario mangerà una mela. Alle tre del pomeriggio la starà ancora mangiando.
Tomorrow morning Mario will eat an apple. At three pm he will still be eating it.

To conclude, perfective verbal forms require events that are, in an intuitive sense, terminated, whereas imperfective ones may refer to non-terminated events. To completely establish Thesis (b)—concerning the non-committal nature of imperfective verbal forms as to terminativity—consider the following sentence:

(25) Tre ore fa, Messner raggiungeva la vetta (*e la sta ancora raggiungendo). (*CONT)
Three hours ago, Messner reached (IMPF) the top (*and he is still reaching it).

---

3. The possibility is open for the first event to be a part of the second, in case we admit that non-terminated event can have terminated parts. The important point is that (23a) differs from (23b) since one and the same non-terminated event can make true both clauses.

This example is parallel to (22b). Despite the presence of the imperfect the event is terminated—Messner reached the top at a past time—and the continuous/ on-going reading is disallowed. Consider also (26):

(26) a. #Mario raggiungeva la vetta quando un fulmine lo colpì (e lui non arrivò mai in cima)
M. reached(IMPF) the top when a bolt stroke him (and he never got to the top)

b. Mario stava raggiungendo la vetta quando un fulmine lo colpì (e lui non arrivò mai in cima)
M. was reaching the top when a bolt stroke him (and he never got to the top)

Example (26a) is odd because the first part asserts that Mario did reach the top, whereas the second implicitly negates that this was the case. However, if we replace the imperfect tense of (26a) with a progressive form, as in (26b), the oddness is removed. Now the sentence conveys that Mario was on the point/ about reaching the top, when a bolt stroke him so that he never got to the top.

Examples (25) and (26) show that sentences featuring an achievement predicate in the imperfect tense pattern together with perfective sentences, in the relevant respects—namely, they yield terminative readings. Given that in other cases, e.g. (22a) and (23a), sentences with an imperfective predicate can provide for non-terminated readings, it is possible to conclude that: i) the facts in (25) and (26) are due to the actional properties of achievements, a point to which we will return, and ii) the imperfect is compatible both with terminative and non-terminative readings. This proves Thesis (b): imperfective verbal forms are aspectually neutral.

Now, consider the following sentences:

(27) a. Ieri Gianni raggiungeva la vetta in tre ore.
Yesterday Gianni reached(IMPF) the top in three hours.

b. Ieri Mario correva il miglio in un'ora.
Yesterday Mario ran (IMPF) the mile in an hour.

c. Due giorni fa Gianni leggeva la Divina Commedia in tre ore.
Two days ago Gianni read(IMPF) the Commedia for three days.

Despite the presence of the imperfect, these three sentences report about terminated events, something which is possible according to Thesis b.[4] Importantly, in this case *in-X-time* adverbials are allowed, showing that the predicates in (27), once terminative, are also telic.

These facts are important because they permit to improve on the conclusion of §1, concerning the impossibility for the telic/ atelic distinction to apply only to imperfective predicates. The right generalisation now seems that telicity/ atelicity is restricted to terminative predicates, and that the restriction is independent of the (morphological) ways terminativity is realised—either by means of a perfective verbal form, as in *Mario corse a casa in tre ore* (Mario ran home in three hours), or by means of imperfective ones, as in (27).

As expected, it is sometimes possible to force terminative atelic readings with the imperfect:

(28) Nel 1995 Mario Rossi dormiva per tre giorni, battendo così il record.
In 1995 Mario Rossi slept(IMPF) for three days, this way beating the record.

Suppose that the topic of the discourse is how long people can sleep before awaking. Then (28) would be both appropriate and acceptable, reporting about a remarkable achievement by Mario Rossi in this respect. The event making the sentence true is terminative and atelic, as witnessed by the availability of the *for-X-time* adverbial.

Thus in this section we have established the following three facts:

(29) a. the notional counterpart of morphologically perfective verbal forms is *terminativity*;

b. the morphological distinction between perfective and imperfective verbal forms does not correspond to two distinct aspectual (notional) values, but to the presence vs. absence of the unique aspectual value of terminativity;

c. the telic/atelic distinction only applies to terminative predicates.

---

4. The sentences in (27) have a strong reportive flavour. We will not discuss what reportivity amounts to. For our purposes it is enough to notice that, meaning nuances apart, the imperfect is compatible with terminative readings.

As already observed, the relevant connection is that between telicity/ atelicity and terminativity/ non-terminativity (both being two notional/ semantic distinctions). Perfectivity/ imperfectivity is a morphological distinction, and plays a role only as a vehicle for the latter. The proposal permits to account for the range of phenomena discussed in §1—namely, the vacuity of the telic/atelic distinction with continuous predicates—while extending to such facts as (27) – terminative predicates built out of imperfective verbal forms – without resorting to such devices as coercion.

If these conclusions are on the right track, the notion of terminativity is crucial for understanding the telic/atelic distinction. Thus, the next two sections, §3 and §4, will be devoted to a detailed discussion of the relevant phenomena, and of the proposals available in literature. This will enable us to present our own account in §5. Having set the stage, we will then return to telicity/atelicity in the last sections of this work, from §6 onwards.

3. Terminativity I

In this section we address the following two questions: granted that the terminativity/ non-terminativity distinction is empirically well-grounded, is there enough evidence that the it should be countenanced by (event) semantics? In case of a positive answer, what kind of properties the distinction is a manifestation of: properties of events, of predicates, or of some other entity (e.g. propositions)?

Concerning the first question, whether it is correct to take the terminative/non-terminative distinction as relevant for semantics, a possible answer is in the negative. To take the simplest cases, it might be argued that the differences between perfectives and continuous imperfectives do not involve semantics, truth-conditional issues, but express the different *perspectives* or *points of view* which a speaker/hearer takes when talking about events: an external perspective—typically supported by perfective tenses—whereby events are somehow presented as wholes; and an internal one—made available by imperfective forms. Thus, when using a sentence such as (30a) the speaker intends to report about an event as seen from the 'outside', whereas he would utter (30b) if meaning to talk about an event as seen from the 'inside':

(30) a. Gianni mangiò/ ha mangiato una mela.
Gianni ate/ has eaten an apple.

b. (Alle tre) Mario mangiava una mela.
(At three) Mario ate (IMPF) an apple.

It must be acknowledged that the two kinds of sentences (can) indeed enforce different perspectives on events. But we also think that this does not eliminate the need for a semantic account—that is, the perspective distinction does not exhaust the differences between the two sentences, which are, in the very end, truth conditional.[5]

Such a conclusion is supported by the facts discussed above. As we saw, imperfective sentences are not committed as to terminativity/non-terminativity whereas perfective ones are. The former can be made true both by terminated and by non-terminated events, whereas the latter require terminated ones. In the particular cases exemplified by (31), there are events which can make true both (31a) and (31c), but no event can do the same job with respect to (31b) and (31c):

(31) a. Mario mangiava una mela.
Mario ate (IMPF) an apple and he is still eating it.

b. Mario ha mangiato una mela.
Mario has eaten an apple.

c. Mario mangia una mela.
Mario eats an apple.

---

5. The discussion does not mean to address such variants of the perspective theory as Kamp and Reyle's (1993) or de Swarts' (1998). These theories, in fact, do (more or less explicitly) acknowledge truth-theoretical differences between the relevant verbal forms, usually in the form of different relationships between the (time of the) relevant eventuality and the temporal anchor: in continuous readings the eventuality is said to be temporally included within the temporal anchor, whereas terminated readings give rise to a relation of temporal overlap. Implementational details aside—e.g., the nature of the truth conditional differences between terminative and non-terminative verbal forms—our favoured theory basically agrees with Kamp and Reyle's and with de Swarts'.
However, once we get to the semantic nature of the differences, we will maintain that there is ground to believe that non-terminated events ontologically differ from their terminated counterparts. One relevant case in this respect is the existence of non-terminated events that lack a terminated counterpart (and are not going to have any—e.g. so-called eternal processes). Also, it can be argued that being a non-terminated event, whatever this might turn out to mean, amounts to lacking some essential, individuating property—e.g., a temporal one—so that, again, the two kinds of events need be ontologically distinguished.

Events which persists at the utterance time can make (31a) true, whereas (31b) requires events which don't. This shows that terminative and non-terminative verbal forms can pick up different entities; therefore, that the differences between (31a) and (31b) cannot be reduced to a matter of perspective, but pertain to reference—that is, they are semantical. To be sure, the possibility of a non-terminative reading is compatible with a from-inside perspective. But the latter does not explain the former; rather, the perspective facts seem to be parasitic upon the semantic ones.

Concerning the second question—what kind of property the terminative/non-terminative distinction is a manifestation of—we believe the right level of analysis is that of event particulars. However, it is possible to take a different attitude and argue that terminativity/ non-terminativity is due to the existence of different predicates. Some predicates, which correspond to the core meaning of 'ordinary' verbs, account for terminativity; the other, which are derivative on the former, account for non-terminativity. Crucially, both kinds of predicates can range on the same individuals.

This is the core of the *partitive* account to imperfectivity, which will be discussed in the next section. Here we want to discuss another common proposal that assimilates such non-terminative verbal forms as the Italian imperfect and present tense (in their relevant readings) to the (English) progressive. Given the wide consensus concerning the intentional nature of the latter, the proposal ends up seeing the differences between terminativity and non-terminativity as one between extensional and intensional ways of talking about event particulars.

It seems that the assimilation of non-terminative verbal forms to progressive ones is less than perfect. On the one hand, in fact, progressive and continuous imperfective sentences have overlapping, but not identical distribution. For instance, achievement predicates are not allowed with the present tense (an imperfective, non-terminative tense), whereas they are possible with the progressive periphrasis:

(32) a. *Mario raggiunge la vetta.
Mario reaches the top.

b. Mario sta raggiungendo la vetta.
Mario is reaching the top.

The relevance of (32a) can be better appreciated if its ungrammaticality is contrasted with the grammaticality of other eventive predicates with the present tense in Italian. In these cases we have typical imperfective, continuous readings, which are (nearly) synonymous with the corresponding progressive forms: [6]

(33) a. Mario mangia (una mela)/ corre (a casa)
Mario eats (an apple)/ runs (home)

b. Mario sta mangiando (una mela)/ correndo (a casa)
Mario is eating (an apple)/ running (home)

A contrast parallel to that exhibited by (33) can be found with the imperfect tense in subordinated clauses:

(34) a. Mario ha detto che Gianni raggiungeva la vetta. (*SIMUL; SHIFTED)
Mario said that Gianni reached (IMPF) the top.

b. Mario ha detto che Gianni stava raggiungendo la vetta.
(SIMUL; SHIFTED)
Mario said that Gianni was reaching the top.

Example (34a) has only a backward shifted reading—that is, the reaching necessarily precedes the saying.[7] The simultaneous reading, according to which

---

6. The case of achievement predicates in the imperfect tense is only apparently more complicated. While discussing examples (27) we observed that those sentences have only a reportive reading. Such a reading is always terminative—that is, there is no non-terminative meaning for (ia):

(i) Mario raggiungeva la vetta.
Mario reached(IMPF) the top.

The non-terminative reading is available with the progressive:

(ii) Mario stava raggiungendo la vetta.
Mario was reaching the top.

7. Caveat: sentence (34a) is acceptable only if enough background is provided. For instance, suppose that Mario underwent an oral examination in history. Then you might ask what happened and someone reply with the following:

Mario reported about a reaching that was going on at his own time, is not available. Importantly, when the progressive is used such a simultaneous reading *is* available.[8] Thus (32) and (34) show that the continuous readings of imperfective tenses, and the progressive periphrasis have a different distribution.

Another reason for rejecting the attempt at assimilating continuous imperfective sentences to progressive ones is that the progressive is intensional (Landman, 1992), but continuous imperfective forms are not (Giorgi & Pianesi, 1997; Bonomi, 1998). Thus consider Landman's discussion of (35):

(35) When Lucifer interrupted him, God was creating a unicorn.

The main verb, *create*, is extensional and we might safely agree that in a sentence featuring such a verb the individual denoted by the direct object comes into existence as a result of the occurrence of the event itself. When the tense is a past one, such an object must exist, or have existed for some while after the end of the creation process. Thus an utterance of the following sentence is odd, since it commits the utterer to believe in the (past) existence of unicorns:

(36) God created a unicorn.

(i) Il professore ha chiesto a Mario cosa fosse accaduto nel 1510 e Mario gli ha detto che (in quell'anno) Cristoforo Colombo scopriva l'America.
The professor asked Mario what happened in 1510, and Mario told him that (in that year) Cristoforo Colombo discovered America.

As in matrix contexts, the imperfective verbal forms of achievement predicates have a strong reportive flavour.

8. The reason why (34) is parallel to (32) is that in both cases the contrast is due to the behaviour of terminated events with respect to their anchoring event. Giorgi and Pianesi (1997) showed that terminated events cannot be simultaneous to their anchoring event/time. In matrix clauses, such as (32a) and (32b), the anchoring event is the utterance event/time. Thus, the terminated event of (32a) cannot be simultaneous with the utterance. However, simultaneity with the anchoring time is what the present tense requires, thence the ungrammaticality of the sentence. In subordinated clauses, the anchoring event is the matrix one. The same constraint as before excludes the simultaneous reading of (34a): the terminated event of the subordinate clause cannot be simultaneous to the anchoring (matrix) one.

Example (36) contrast with (35) in this respect, since the latter does not require any similar commitment by the utterer. This shows that the position of the direct object of (35) is not extensional but intensional. Given that the verb by itself is extensional, and that the only difference between (36) and the relevant clause of (35) is the progressive form, intensionality must be due to the latter.[9]

Now, imperfective sentences differ from their progressive counterparts on the intensionality issue:

(37) a. Quando Lucifero lo interruppe, Dio stava creando un unicorno.
When Lucifer interrupted him, God was creating a unicorn.

b. Quando Lucifero lo interruppe, Dio creava un unicorno.
When Lucifer interrupted him, God created (IMPF) a unicorn.

Sentence (37a), where the Italian progressive periphrasis is used, is like English (35) in the relevant respects: it doesn't commit the utterer to believe in actual unicorns. Example (37b), with the imperfect, does exhibit such a commitment showing that imperfective verbal forms differ from the progressive periphrasis in

---

9. Landman's discussion of (35) goes further to refute the extreme extensionalist. For instance, Parsons (198X) maintains that the progressive does not affect the extensional nature of the main predicate, arguing that the extensionality of *create* does not require that a whole unicorn be in existence when Lucifer interrupted God. It is sufficient that *partial* unicorns (pieces thereof, so to speak) were, and this is possible since creation is a typical stepwise process. Landman's reply involves considering a scenario in which (35) can be felicitously used to report on a situation in which the creation process was not stepwise, or not so in the way Parsons' argument would require. For instance, God might have been acting as a magician, pronouncing magic formulae, etc.., with the unicorn expected to appear in a flash at the very end of this (possibly long) process. No partial unicorns, or unicorn's parts would be involved in this case. If Lucifer interrupted God amidst this process, *nothing* was there which can justify the extensional analysis.
It can be noted that example (35) also provides a good counterargument to theories of aspect which emphasise the role of so-called *incremental themes*, and of the *graduality* of the thematic relation, as in Krifka (1989, 1992, 1998). It shows, in fact, that incrementality and graduality—that is, the existence of a regular relationship between parts of the event and parts of the (affected) object—is subject to contextual determination. In Landman's example, verbs such as *create* which typically have a gradual thematic relation to the object can be felicitously used in scenarios excluding graduality. In the same scenario telic sentences are appropriate.

(ii) Good created the unicorn in three minutes.

Suppose that Lucifer had not interrupted God, and that the whole process lasted three minutes. Then the unicorn would have come into existence, in the manner described above (formulae, etc.) which exclude graduality. In this case (i) are perfect, casting doubts on the hypothesis that telicity depends on graduality/incrementality.

that the latter are intensional, whereas the former remain extensional. That is, continuous imperfectives do not affect the intensional/extensional nature of the base verb.

The different distribution of imperfective continuous forms and progressive forms with achievement predicate, and the differences along the extensional/ intensional dimension show that the attempts at equating imperfective verbal forms to the progressive is incorrect. In particular, if the right analysis of the progressive involves the presence of some sort of intensional operator, then such an approach cannot be extended to imperfective verbal forms.

To summarize the discussion in this section:

i) the terminative/ non-terminative distinction cannot be reduced to the different perspectives the utterer can take on the same event. On the contrary, the distinction has a semantic import, and the perspective differences are parasitic on such semantic facts.

ii) attempts at explaining the terminative/ non-terminative distinction by equating non-terminativity to progressives neglects important empirical and conceptual differences.

We therefore propose that the terminative/ non-terminative distinction is something that directly pertains to event, and that event semantics must provide means for telling terminated events apart from non-terminated ones.

4. Terminativity and non-terminativity: which comes first?

Within event semantics, the terminative/non-terminative distinction hasn't received much attention. One possible reason is that English lacks a verbal form corresponding to the Italian (and Romance) imperfect, which is non-terminative and does not involve the quirks of progressives. More generally, following Giorgi & Pianesi (1997) it can be argued that English lacks imperfective verbal forms tout court, so that the terminative/non-terminative distinction hardly arises in this language.[10] As a result, the kind of predicates and events discussed by most philosophers (including Davidson) and linguists correspond to the "terminated"

---

10. *Contra* a consolidated tradition, and for the reasons explained in §3, we crucially do not consider the progressive as an imperfective form.

events of the previous sections. The events making true sentences such as *John ate apples*, *Jones buttered the toast*, *Brutus killed Caesar* are all on a par with respect to terminativity regardless of the telic or atelic nature of the reporting sentence. Practically, all the theoretical set-ups proposed in the literature, including those rejecting event semantics, restrict their attention to terminated events.

Consider, for instance the simple eventive sentences in (38). Adopting an event-based semantics, the truth conditions of the English (38a) and of its Italian counterpart (38b) are as in (38c).

(38) a. John ate an apple.
b. Gianni mangiò/ha mangiato una mela.
c. $\exists ex(\text{eat}(e) \wedge \text{Agent}(e, \text{John}) \wedge \text{Theme}(e, x) \wedge \text{apple}(x))$

Those truth conditions make explicit a number of commitments. In the first place, an ontological commitment towards events conceived as particulars. In the second, that verbs are predicates/ classifiers of events and that they introduce eventive variables. Finally, that most eventive sentences are existentially general over events. Current event semantics theories, however, do not have much to say about the distinction between terminative and non-terminative sentences. They can provide the (intuitively) correct truth conditions for the former, but are often silent about the latter–e.g., the continuous readings of the Italian imperfect or present tenses. Moreover, once the necessity for the terminative/non-terminative distinction is acknowledged, truth conditions such as those in (38c) are correct only as far as we understand the eventive variable as restricted to terminative events.

Taking these facts as reflecting some empirical generalisation, rather than a mere theoretical bias, one might think that terminativity is the default case, with non-terminativity as a derivative notion. A common implementation of such a view is the *partitive* account, which we exemplify by discussing Krifka's (1992, 1998) proposal. The basic ingredients of the partitive account of non-terminative sentences are that a) ordinary eventive predicates–e.g., *eat*–are terminative, and b) non-terminativity is due to 'derived' predicates whose denotation is related to that of the 'ordinary' terminative predicates by the *part-of* relation. Within a basic event semantics framework the 'non-terminative version' of the predicate Q is a

predicate *Q-p* such that *Q-p(e)* iff there is an event *e'* such that *P(e')* and *Q(e, e')*, where P is the part-of relation. Therefore, the interpretation of the non-terminative Italian sentence (39a) relies on the truth conditions in (39b), along with the condition in (39c):

(39) a. Gianni mangia.
Gianni eats.

b. $\exists e$(eat-p(e) $\wedge$ Agent (e, Gianni))

c. eat-p(e) iff $\exists$ e' (eat(e') $\wedge$ P(e, e'))

d. Mario ha mangiato.
Mario has eaten.

Sentence (39a) is true iff there is an event *e* whose agent is Gianni, and *e* is classified by the non-terminative predicate *eat-p*. In turn, such a derived predicate requires that there exists another event *e'* which is an eating and such that *e* is part of it. It is important to realise that (39b) does not require that *e* itself be an eating event; the predicate *eat* enters the semantics only through the condition (39c) where it classifies the larger event of which *e* is a part-of. More than this, for (39c) to work properly, and provide an account of the distinction between terminativity and non-terminativity it is crucial that the two variables be assigned different values. Were this not the case, in fact, a) (39c) would be vacuous, and b) nothing would prevent it from being used for terminative sentences too, e.g. (39d). In this case, in fact, (39b) would be true iff there is an *eat-p* event *e*, where this amount to requiring that there is an even that is an eating and is part-of *e*. But *e* itself satisfies these two conditions, hence (39b) and (39c) would be adequate for terminative sentences. Eventually, the distinction that the partitive approach tries to capture would be lost.

However, it seems that the two variables in (39c) can indeed be assigned the same value. Italian speakers have the clear intuition that events making true (39a) are as much eatings as those making true, say, the corresponding terminative sentence (39d). If so, a variable assignment for (39c) might well assign *e'* the same value as *e*. With this (39c) would be irrelevantly true, and fail to distinguish terminativity/ non-terminativity. To counter this argument, one might reply that *mangiare* (eat) is not the right kind of predicate to probe the theory with, since, in

isolation, it is homogenous. Things would be different if a non-homogeneous predicate is used, e.g., *mangiare una mela* (eat an apple), *bere un bicchiere di birra* (drink a glass of beer), which are such that, once they apply to an event, they do not apply to subparts. Unfortunately, this is only partially true. As will be seen in §6.4, predicates such as *mangiare una mela* (eat an apple) are non-homogenous only in their terminative meaning, whereas all the predicates that appear in non-terminative sentences are homogeneous:[11]

(40) a. Gianni mangiava una mela.
Gianni ate(IMPF) an apple.

b. Gianni ha mangiato una mela.
Gianni has eaten an apple.

If *e* is the event making (40b) true, then no proper part of it is in the extension of the terminative *ha mangiato una* mela (has eaten an apple). As expected, the predicate is homogeneous. However, any part of the event making true the non-terminative (40a) is in the extension of the same predicate. Then we are with (40a), and its present tense version, in the same situation as with (39a): condition (39c) is always true, and does not help distinguish between terminative and non-terminative sentences.

Another possibility to rescue the partitive approach might be to simply require that *part-of* be substituted in (39c) by *proper-part-of*. Apparently, this move is capable of avoiding the problems just discussed, since in no case the same event would be assigned to both variables in (39c). However, it commits the (extensional version of the) theory to the actual existence of a larger event of eating, *e'*, of which *e*, the truth maker, is a proper part. But ordinary utterances of (39a) do neither assert nor presuppose such an entity. For all is known, *e* might

---

11. We do not consider sentences such as:

(i) a. Gianni corre a casa.
Gianni runs home.

b. Gianni trova un libro.
Gianni finds a book.

which are not available with any continuous imperfective forms, because they are always terminative.

end exactly at that point (while the speaker utters the sentence); in this case *e=e'* so that resort to the proper-part-of relation is precluded. Nonetheless, in such a case (39a) is felicitous. Moreover, it is possible to use (41) at a later time, another non-terminative sentence, to describe what happened at the point when (39a) was originally uttered:

(41) Gianni mangiava.
Gianni ate(IMPF).

Thus, the existence of an actual larger event is not necessary for the truth of (39a).

At this point, the only way out for the supporter of the partitive view is to go modally, and hypothesise that the greater *e'* needs not be actual. But this threatens to make non-terminative verbal forms hardly distinguishable from progressives, a view which we have already discussed and rejected in §3.[12]

These criticisms address the basic features of any partitive account of continuous imperfective (non-terminative) verbal forms (within an event semantics). Given the reliance on the part-of relation, any such a theory need commit itself to one of the followings: a) besides the truth maker, *e*, non-terminative sentences require the existence of a larger event, *e'*, of which *e* is a proper part, and which is classified by the basic predicate. b) simple part-of suffices, but then it is necessary to supplement (39c) with some further requirement in order to properly characterise the terminative/ non-terminative distinction. We have shown that the first requirement cannot be met. The second possibility is still open to investigation, even if it is not clear what could be added to (39c) to make it do the job it was proposed for. We, therefore, conclude that the partitive account of non-terminativity is incorrect, and, a fortiori, we reject the idea that non-terminativity is semantically a derivative notion.[13]

---

12. The notion of a 'possible' event continuation, often taken to show up in progressives (Landman, 1992; Bonomi 1998), is indeed modal. In this connection, the remarks in §3 should be understood as entailing that no appeal to such a notion is justified for non-terminative verbal forms.

13. This conclusion does not deny that the event in the logical form of a continuous imperfective sentence can be a part-of (or be somehow related to) that making true the corresponding perfective one. Thus the non-terminated event of *Mario mangiava una mela* (Mario ate-IMP an apple) is related to the terminated event of *Mario mangiò una mela* (Mario ate an apple). The point in the text, however, can be rephrased by saying that the truth of the former sentence does not require the

Returning to the very idea that terminativity is the default case, it should be noticed that it is hardly tenable on morphological grounds. The discussion in §1 and §2 showed that morphologically imperfective verbal forms are compatible with both non-terminative and terminative meanings—that is, they are aspectually neutral/unspecified. On the other hand, morphologically perfective forms can never yield non-terminative meanings—e.g. continuous readings. Given that the perfective is the morphologically marked form, one is led to conclude that, contrary to the tacit assumption outlined above, non-terminativity is primitive and terminativity is derived by means of morphosyntactic operations. That is, bare verbal forms, as encoded in the lexicon, correspond to non-terminated events, terminativity being due to perfective morphemes, and to particular syntactic configurations (see below).

Such a conclusion is strengthened by the observation that eventive nominals too usually introduce events that are aspectually un-specified:

(42) La conferenza/ descrizione è stata noiosa, quindi me ne sono andato.
(terminated)
The conference has been boring, therefore I left.

(43) La conferenza/ descrizione era noiosa, quindi me ne sono andato.
(non terminated)
The conference was (IMPF) boring, therefore I left.

The same eventive nominal, *la conferenza/ descrizione* (the conference/ description), can yield a terminative reading, as in (42), and a non-terminative one, as in (43), depending on the choice of the tense. That is, the event, as contributed by the nominal, is aspectually underspecified.

So we conclude that the bare forms of event-introducing lexical items (verbs and nouns, and whatever else) are (universally) un-specified as to aspect, hence as to the terminative/non-terminative distinction. In languages such as Italian, verbal imperfectivity does not modify such a state of affairs, so that forms such as *correvo* (ran-IMPF-1sn), *mangiavo* (ate-IMPF-1sn) or *canta* (sings) surface as aspectually neutral. Verbal perfectivity adds a specification, let us call it *perf*, to

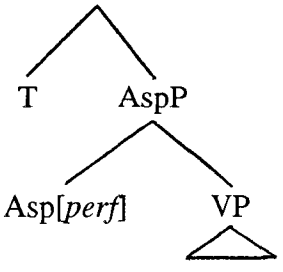
---

truth of the latter, so that the event in the first sentence cannot be characterised in terms of that in the second.

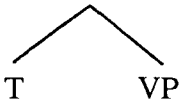
the effect that the event must be terminated, as in the Italian verbal form *mangiò* (ate-SP-3sn).

Following many other scholars, we hypothesise the presence of a functional category hosting *perf*, called ASP, which takes the VP as its complement.[14] Thus, a perfective verb is associated with the structure in (44a), whereas a continuous imperfective form is associated with the structure in (44b):[15]

(44) a.



b.



In Giorgi & Pianesi (1997; 1998), it was argued that such a situation is common to many other languages–e.g., French, German, Slavonic, etc. English, however, behaves differently. In the first place, English verbal forms don't exhibit an imperfective/perfective morphological distinction. Secondly, it can be shown that the eventive verbal forms of this language always pattern together with the perfective/terminative forms of languages such as Italian, German, Slavonic, etc. Thus, it must be concluded that verbal forms such as *ate*, *ran*, but also *eats*, and *runs* always enter the derivation with a *perf* specification—that is, they are always associated with the structure in (44a). Given the absence of any morphological opposition in English, it follows that the *perf* specification of English eventive

---

14. But see Cinque (1999) for a more articulated view of clause structure.

15. We also hypothesise that ASP can host the *hab* feature responsible for habitual readings. This would straightforwardly explain why such readings are always associated with verbal imperfectivity, in languages having the perfective/imperfective distinction. Moreover, it also explains some facts concerning the possibility of licensing temporal locating phrases in which perfective verbal forms pattern together with habitual ones, and differ from continuous imperfectives, see fn. 26.

verbs is due to a process different from the morphological one of Italian, French, etc. The idea developed by Giorgi and Pianesi (1997) is that the specification is added to the feature bundle of the bare verbal form after it is extracted from the lexicon (where all eventive items are aspectually neutral, see above), and before it is inserted in the derivation. Such a process is due to the morphosyntactic properties of English lexical items, in particular to the poverty of English inflectional morphology.

The underlying rationale (discussed at length in Giorgi and Pianesi 1997) is that languages can resort to (at least) two means to encode the categorial distinction between nouns and verbs: either by resorting to the formal ϕ-features, or by exploiting the substantive features of Asp—namely *perf*.[16] When inflectional morphology is poor or absent, as in English, it cannot provide an adequate basis for supporting categorial distinction—cf. English forms such as *love, loves, dress*, etc. which do not bear categorial distinctions on their sleeves. Thus, English must resort to aspectual specifications. From the point of view of the computational systems this means that each eventive lexical item, once extracted from the lexicon, must be endowed with the *perf* specification in order to be recognised as a verb. Thus, we have the following arrangement of features for bare verbal forms and tense morphemes in the initial numerations of Italian and English:

(45)

	Verbal form	Tense morpheme
English	[...; *perf*....]	[...;±*past*;....]
Italian	[.....]	[....;±*past*; .....] [.....; +*past*; *perf*]

English eventive bare verbal forms are always inserted in the initial numeration with the feature *perf*, so that the tense morphemes of this language only contribute tense information. In Italian, on the other hand, the bare verbal forms are unspecified as to aspect; tense morphemes, in turn, can contribute *perf* besides their tense value, this being the basic difference between the Italian imperfect (no

16. That is, we believe that (at least) eventive items need not be distinguished in the lexicon along the ±N and ±V dimensions, the categorial distinction being the side effect of the interplay between other morphosyntactic properties, and the syntactic structures created in the course of the derivation.

aspectual specification, only anteriority) and the Italian simple past (anteriority *and* the aspectual specification). Ultimately, English bare verbal forms are always aspectually specified, whereas English tense morphemes are not; in Italian, the opposite is true: bare verbal forms are aspectually neutral, whereas tense morphemes can contribute the aspectual specification.[17]

In this section we have argued against the view that terminativity is the default notion and non-terminativity a derivative one, and have concluded that the basic aspectual value of bare eventive forms is neutral. To this end, we have discussed a proposal to serve as a framework for the morphosyntax of the perfective/imperfective distinction. We are now in a position to present a formal framework for encoding terminativity and non-terminativity.

5. Terminativity/non-terminativity: the formal framework

In the previous two sections we discussed reasons to reject the idea that the terminative/ non-terminative distinction is to be explained as a property of verbal predicates. The alternative we are going to discuss consists in taking it as expressing properties of events. In this respect, there are two possible ways to proceed: the indirect way, which hypothesises that what matters are the properties of the times of the events; or the direct way, which takes the conclusion at face value and directly encodes the distinction in terms of properties of events.

Concerning the first possibility, once expressed in an event semantics framework the basic idea is that terminative events are those having a bounded/ closed time *trace*, whereas non-terminativity involves events with non-bounded/ closed time traces.[18] Therefore, if τ is the function associating every event with its temporal trace, an event e would be terminated iff the interval $\tau(e)$ is closed. It would be non-terminated if $\tau(e)$ is open, half-open, etc. As can be seen, the substantive part of the theory is not about time entities, but about the temporal

---

17. In a way, English tense morphemes are all imperfective, in the sense that they never contribute anything to the aspectual value of the sentence.
Independent confirmations to this theory come from languages where, as in English, verbal inflectional morphology is very poor or absent – e.g., Haitian Creole, Fong Be, Vata and other languages discussed in Giorgi and Pianesi (1998). All these languages pattern with English.

18. See Smith (1991).

trace function. Indeed, it is said that e is terminated iff τ 'associates' it with a closed interval; e is non-terminated if τ associates it with non-closed interval. Thus, unless something more is known about τ, the theory really doesn't say much. In particular, the theory should clarify under which conditions e is assigned a closed or a non-closed interval. Ultimately, unless the pairing of an event with an interval is an entirely arbitrary matter (and hence unsuitable for our purposes), it must be constrained by the properties of the event—e.g., if e is so-and-so then $\tau(e)$ is closed; otherwise it is non-closed; or, more explicitly, if the event is bounded then its temporal trace is so as well, etc. But then, why not considering directly those eventive properties? So it seems that, if the theory is to have any explanatory value, we can't but characterise the terminative/ non-terminative distinction by resorting to properties of events, a task to which we now turn.[19]

The basis of our formal framework are provided by an extensional mereology on a domain of events. Symbolising the part-of relation be means of P, the mereology allows us to talk about parts and proper parts of a given event, about overlapping conditions between events, and so on. As usual, mereology provides us also with the sum operator, + and the product operator, $\times$.[20]

Turning to terminativity, we take the relevant distinction at face value, proposing that events are distinguished according to whether they are terminated or not. The connection between the two kinds of events can be formalised by means a function, *ter*, associating events with their terminated counterparts. Such a function has a number of interesting properties: in the first place, if event e is non-terminated, and if its terminated counterpart, $ter(e)$, exists, then e is part of it. If e is terminated, the same relationship trivially obtains between e and itself. Thus (46a) holds:

(46) a. $\mathsf{P}(e, \mathsf{ter}(e))$

---

19. Another possibility would be to exploit to the notion of *continuation*: an event is non-terminative iff there is another event that is its continuation; otherwise, it is terminative. In many respects, this is a variant of the partitive theory, and is subject to basically the same criticisms. In particular, it must be shown that it is possible to provide an adequate characterisation of 'continuations' without resorting to intensional notions.

20. For mereology, see Simons (1985) and Pianesi and Varzi (1996). See also Link (1983, 1987) and Krifka (1989, 1992, 1998). The mereological set up we are exploiting is described in the appendix.

b. ter(ter(e)=ter(e)

c. ter(e)+ter(e')=ter($e + e'$)

Secondly, if e is terminated; then we might safely assume that the function *ter* applies vacuously—that is, $ter(e)=e$. With this convention, when e is non-terminated we have that $ter(e)=e=ter(ter(e))$. Therefore, (46b) holds. Finally, if e and e' are two terminated events, so will be their sum, yielding (46c).

The statements in (46) establish that the function *ter*, which models terminativity, is: *extensive* (every event is part of its terminated counterpart), *idempotent* (the terminative counterpart of a terminated event is the event itself), and closed under finite sum. That is, *ter* meets the axioms defining a *topological closure operator*.[21] If the proposed characterisation of terminativity is accepted, we can take (46) as definitory, and conclude that the terminative/ non-terminative distinction is a manifestation of (some of) the topological properties of eventive domains.

According to such a view, there are two kinds of events: those that are topologically closed/terminated, and those that are topologically non-closed/non-terminated. The former are the e's such that $ter(e)=e$; the latter are those for which $ter(e)\neq e$ is true.[22] Notice that this way of encoding the terminative/non-terminative distinction does not require heavy ontologically commitments. Beyond the original commitment towards events as particulars, we have simply introduced some structure in the eventive domain. In this respect, the situation is similar to that of traditional set-theoretic topology. Closed and open sets are not new entities with respect to those already countenanced—namely, sets. They are simply entities obeying different structural constraints.

Before concluding this discussion of the topological properties of eventive domain, let us introduce some more formal apparatus.[23] We symbolise with $b(x)$ the boundary of a terminated event—intuitively, the totality of the parts of x which

---

21. The axioms in (46) are the mereological counterpart of the Kuratowskian axioms for operators of topological closure. For more on this topic see Pianesi & Varzi (1996).

22. We leave open the possibility that *ter* be a partial function on the eventive domain. On this point see Pianesi and Varzi (1996).

23. For a more complete treatment of the mereo-topological setting, see Pianesi and Varzi (1996). See also Giorgi and Pianesi (1997) for further application of these notions to event semantics.

separate it from the rest of the eventive world. If we strip away the boundary from a terminated event e, what we obtain is the *interior* of e—namely, the maximal part of e that is completely unbounded, symbolised with $int(e)$. As in set-theoretic topology, we can then prove the following statement:

(47) $ter(e)=int(e)+b(e)$

Thus (47) establishes that every terminated event can be decomposed into its interior part, and a boundary, the latter being conceived of as the entity delimiting the event.[24]

We are now in a position to provide different truth conditions for terminative and non-terminative sentences. Using a predicate *t*, true only of terminated events, the truth conditions for the terminative sentences in (48a) and (48b) are as in (48c):[25]

(48) a. Mario ha mangiato una mela.
b. Mario ate an apple.
c. $\exists e \exists x(\text{eat}(e) \wedge t(e) \wedge \text{apple}(x) \wedge \text{Theme}(e, x))$

Abstracting away from tense, (48c) establishes that an utterance of (48a) or of (48b) is true iff there is a terminated event of eating an apple, where terminativity is modelled according to (46).

---

24. We can then define *open* events as follows:

(i) $Op(x) =_{df} x=int(x)$

That is, open entities are those which do not contain any part of their boundary. This way we have reconstructed the basics of traditional topology within our mereological framework. Notice, however, that the closed/ open dichotomy does not exhaust the terminated/ non-terminated one. As stated in the text, e is non-terminated as soon as $ter(e) \neq e$. This definition applies both to events which are open according to (i), and to events which are neither open nor closed—that is, entities that contain some, but not all of their boundary.

25. The predicate *t* is defined as follows:

(i) $t(e) =_{df} ter(e)=e.$

The truth conditions for a non-terminative sentence do not mention the predicate *t:*[26]

---

[26]. The truth conditions provided in the text for terminative and non-terminative sentences are not complete since they do not mention the contribution of tense and that of temporal localisations. Indeed, the two kinds of sentences crucially differ in this respect, see also Delfitto and Bertinetto (2000):

(i) a. Alle tre Mario ha preso il tè.
At three Mario had tea.

b. Mario ha preso il tè alle tre.
Mario had tea at three.

In perfective sentences, e.g. (i), the initial vs. final position of temporal locating phrases does not affect the truth-conditions. Thus both (ia) and (ib) are true iff there is a past and terminated event of Mario having tea which occurred at three o'clock:

(ii) $\exists e$(have-tea(e) $\wedge$ t(e) $\wedge$ at(e, three-o-clock))

However, when we turn to imperfective sentences, the position of the temporal phrase does matter:

(iii) a. Alle tre Mario prendeva il tè. (CONT; HAB)
At three Mario had (IMPF) tea.

b. Mario prendeva il tè alle tre. (*CONT; HAB)
Mario had (IMPF) tea at three.

Imperfective sentences with temporal locating phrases in final position lose their continuous reading, and maintain only the habitual/generic one. With achievement predicates, which always provide terminative readings, we have the same pattern as in (i): the position of the temporal phrase does not affect the truth conditions:

(iv) (Alle tre) Mario raggiungeva la vetta (alle tre).
(At three) Mario reached(IMPF) the top (at three).

Thus, setting habituals aside, we can conclude that sentence final locating temporal phrases are allowed only with terminative readings.
Those differences can be related to the fact that in terminative sentences temporal phrases fix the temporal location of the event, whereas this is clearly not the case in non-terminative, continuous ones. Both (ia) and (ib) can be paraphrased by saying that there was an event such-and-such whose temporal location is as specified by the temporal phrase. A sentence such as (iiia), in its continuous reading, doesn't mean that there was an event such-and-such and that its temporal location is three o'clock. More precisely, temporal phrases in non-terminative sentences do not serve to provide a temporal location for events. Rather, these sentences convey that the relevant time was one having a certain property—namely, that it was a time at which a certain event was ongoing. An interesting possibility for accounting for these observations consists in exploiting the fact that the *at* relation in (ii) is asymmetric relation between a localisee and a localiser, and hypothesising that in terminative sentences the temporal phrase and the event provide the localiser and the localisee, respectively, whereas the situation is reversed in non-terminative sentences.

(49) a. (Alle tre) Mario mangiava una mela.
(At three) Mario ate(IMPF) an apple.

b. $\exists e \exists x(\text{eat}(e) \wedge \text{apple}(x) \wedge \text{Theme}(e, x) \wedge ....)$

To summarise, we propose to encode terminativity as topological closure in a (mereological) domains of events; non-terminativity simply amounts to the lack of such a requirement. The perfective aspect then is a morphological means to enforce topological closure on the reference of the predicate, whereas, as argued, the imperfective aspect is simply the absence of any such a specification.

Before returning to the issue of telicity vs. atelicity, let us see how the topological framework just introduced helps in accounting for the fact, discussed above, that the event making a sentence such as (31b) true cannot be on-going at the utterance time, whereas that involved in the non-terminative (31a) can. We resort to an important difference between terminated and non-terminated events—i.e., the fact that the former enter a network of temporal relations, whereas the latter don't. A terminated event has a beginning and an end, thus it is possible to say that it precedes, or follows another event, or even localise it by means of localising temporal adverbials (e.g., *at three*, *when Mary left*, etc.). Non-terminated events, on the other hand, do not have such a possibility: if *e* is non-terminated, it can't be said of it that it precedes another event, or that its location is such-and-such. All we can say of *e* is that at a certain time it was/is/will be ongoing. Vice versa, if *e* is such that we can specify its position, by either relating it to other events, or by means of locating temporal phrases, then such an event is terminated. It is this basic difference that accounts for the data discussed in §2 and §3—see also the discussion in fn.26. Sentence (31c) is a possible continuation of (31a) because the event of the latter is not localised, hence it is possible for it to be still ongoing when (31c) is uttered. This is clearly not possible for the event of (31b), because it is localised at a past time.

We can't pursue this topic any further here. Let us only add that, if correct, this account could explain the often otherwise stipulated asymmetries between the way temporal localising phrases work with continuous imperfective (and statives) and perfectives – cf. Kamp & Reyle's (1993) and de Swarts' (1988) use of temporal overlap with terminatives, and of temporal containment with continuous imperfectives. If the sketched account is tenable, those asymmetries could be reduced to the different ways the event and the temporal phrase enter the same relation, *at*.

Ultimately, event *e* is located at location *x* if and only if its starting and its ending points are located at (within) *x*. A natural way to express this fact within our topological framework consists in resorting to the notion of boundary introduced above: an event is located at *x* iff its boundary is at *x*. Together with (47), which established that only topologically closed events are guaranteed to have boundaries, this entails that the notion of localisation is restricted to closed events.

These informal considerations do not exhaust the problem of the different behaviour of terminated and non-terminated events with respect to temporal localisation. However, they provide further evidence that the topological framework developed in this section is an important means to understand the distinction between terminativity and non-terminativity, and aspectual phenomena in general. In this connection, it should be noticed that it is crucial that topology be applied to events, rather than to temporal intervals (a possibility we already discarded). Indeed, resorting to closed and non-closed intervals cannot accommodate the different localisation properties of events we have discussed. With respect to them, in fact, open and closed intervals are on a par, all being part of the same network of temporal relations. Thence, if we were to model the terminated/ non-terminated distinction as due to whether the temporal trace of the relevant events are closed or non-closed time intervals, we would lose a simple and natural explanation of the contrasts in (31).[27]

6. Back to telicity/atelicity

In this section we are going to see how an account of the telicity/atelicity distinction can be developed on the basis of the proposal for terminativity/non-terminativity put forth in the previous sections. The analysis to be developed departs from many current theories in that it does not take notions such as incrementality, graduality, or event measuring as the basic ones upon which the explanatory apparatus is to be construed. Our theory, based on Higginbotham (2000), rejects the idea that what underlies aspectual phenomena is the presence/

---

27. One might endeavour to propose a non-standard topology for time intervals to account for the facts. However, why doing so, if standard (mereological) topology applied to events seems to work?

absence of regular relationships between the denotation of verbal predicates, and that of their arguments. Rather, we will argue that the telicity/ atelicity distinction is to be explained by means of the presence/ absence in the logical form of an eventive variable for the boundary (the telos) of a terminated event. We will also show that such a theory can account for the mentioned relationships between the denotation of verbal predicates and that of their arguments as derived phenomena.

Given the crucial role that such the mentioned regularities plays in many current approaches, we start by discussing two well-known theories that implement such a general idea—namely, Verkuyl's (1993; 1999) and Krifka's (1989; 1992; 1998) trying to highlight the empirical and conceptual problems they give rise to. Then, in §6.2 we will present our proposal.

6.1. The regularity approach

The incremental/regularity approach to telicity/atelicity is motivated by contrasts such as those between (9) and (13). In the presence of the very same verb, properties of the direct object seem to play a crucial role in determining whether the resulting sentence is telic or atelic. Thus (9), with a countable direct object, is telic, whereas the mass term of (13) enforces atelicity. It seems natural to hypothesise, then, that some relationships between the denotation of the direct object and that of the resulting complex verbal predicate is at play so that the latter inherits (part of) the properties of the latter.

Verkuyl (1993, 2000) pursues this program by giving up the notion of event, as endorsed in Davidsonian semantics. He resorts to (abstract) times structures and noun phrase denotations, using the tools of generalised quantifier theory. The idea is that the meaning of a verb phrase consists of a function relating the denotation of the subject to the denotation of the object at different (abstract) times, where time is given a discrete structure, basically akin to that of the natural numbers. Therefore, the role of VPs denotations is to relate the subject denotation with pairs consisting of a time and an abstract *position* in the object denotation, such a position being conceived of as a member of a given partition of the noun denotation. To use a metaphor, Verkuyl conceives of the verb as providing an abstract clock whose functioning specifies the *path* the subject goes through in the object denotation. It is from this basic structure—the path in the object denotation—that aspectual phenomena stem, and it is this basic structure that

realises the regular/gradual/incremental relationship mentioned above.

With respect to such facts as (50)—namely, the role of arguments in determining aspectual properties—in his 1972 work Verkuyl pointed out that what distinguishes objects which (in the appropriate environment) induce telicity, from those which (in the same environment) determine atelicity is some abstract notion pertaining to cardinality, which he called SQA (Specified Quantity of A, where A is the noun denotation).

(50) John ate an apple/ two/most of the/all the apples in/ *for half an hour.
John ate apples *in/for half an hour.

A direct object DP such as *an apple* differs from the bare plural *apples* in that the former has a constraint on the cardinality of its denotation (one element) that the second lacks. Generalising this property to all the determiners to which the +SQA specification applies, and given that the verb denotation (the 'clock') works on members of a partition of the nominal phrase denotation, if the latter does not have a specified cardinality, the partition lacks a specified cardinality as well. But this means that it is not possible to determine when the clock *stops*. This, Verkuyl argues, is the basis of the distinction between telicity and atelicity: telicity reflects the presence of a final point for the path the subject goes through in the object denotation, whereas atelicity is due to the absence of such an end point. If in (50) cardinality information about the (denotation of the) direct object is available, the stopping point—that is, the point in the noun denotation wherefrom the *path* cannot continue any further—can be specified, this way obtaining telicity. When cardinality information is missing, no such an end point in the abstract *path* can be specified, hence atelicity.

However, consider the following sentence:

(51) John counted the reals in three hours.

On the one hand, temporal structures are discrete—that is they have the structure of the naturals. On the other, Verkuyl's requires the verb to map such discrete structures into a partition of the object's denotation, this way making the latter discrete. Now, the cardinality of the direct object in (51) exceeds that of the

naturals. Countable partitions of the reals can be considered, e.g., by understanding (51) as saying that the counting went through a partition formed by the numbers which are less than 1000, those which are greater or equal than 1000 and less than 10000, and those greater or equal than 10000. But there is a clear sense of (51) in which the relevant partition is one in which each real is a singleton, and it seems impossible for the verb function to map a discrete structure into any appropriate partition of the reals preserving the intended meaning. Obviously, the sentence is absurd, and probably necessarily (analytically) false, at least if we intend 'counting' as meaning 'enumerating'. However, the point is not the oddity or impossibility of the depicted situation. The point is that the sentence *is* grammatical, contrasting with **John counted apples in two hours*, which is not. In our understanding, this is a problem for the theory: there are cases in which the attempt at capturing aspectual phenomena in terms of a regular/discrete relationship affecting the argument denotation does not yield the desired results.

Another well-known version of the regularity/incremental approach is Krifka's (1989; 1992; 1998). Contrary to Verkuyl, he has events in his ontology, and exploits an algebraic semantics framework with the *part-of* relation, symbolised by $\sqsubseteq$, as the basic structuring device, to model the relationships between the denotations of the direct object and of the verb. The carrier of the model consists of two lattice-theoretic structures, one for ordinary objects and the other for events.[28] He then defines a number of higher-order predicates and relations characterising different reference types. For instance, *cumulative* reference—the property holding of predicates which are closed under the join operation, + —can be used to model masses (e.g., *wine*, *bread*), bare plurals (*apples*), and, in the eventive domain, atelic predicates (*drink wine*, *eat apples*):

(52) $\forall P(CUM(P) \leftrightarrow \forall x,y(P(x) \wedge P(y) \rightarrow P(x+y)))$ Cumulative reference

The reference of mass nouns or bare plurals such as *wine*, *apples, bread*, etc., in fact, is such that given two quantities of wine, apples, bread, etc., their sum is still a quantity of wine, apples, bread, etc. Likewise, in the eventive domain the reference of *run* is such that given two runnings e_1 and e_2, their mereological sum

---

28. On the algebraic approach to semantics, see Bach (1981, 1986), Link (1983, 1987), and Landman (1991).

(the lattice join e_1+e_2) is still a running. Another relevant property of predicates is *quantised* reference:

(53) $\forall P(QUA(P) \leftrightarrow \forall x,y(P(x) \wedge P(y) \rightarrow \neg x \sqsubset y))$ Quantised reference

A predicate has quantised reference if and only if for any two entities in its extension, it is never the case that one is part-of the other. To exemplify, for any two events in the extension of *eat an apple* no one is part of the other.

Besides the eventive and the objectual domain, Krifka also consider a temporal domain T, also endowed with a lattice theoretic structure. The eventive domain E and the temporal domain T are connected by an homomorphic mapping τ, the *temporal trace function*, associating an event e with its 'temporal trace' $\tau(e)$.

Concerning telicity, Krifka first introduces the notion of the *terminal point* of an event—that is, the last time in the temporal trace of the event:

(54) $\forall e,t\ (TP(e)=t \leftrightarrow t \sqsubseteq \tau(e) \wedge \forall t'\ (t' \sqsubseteq \tau(e) \rightarrow t' \leq t))$

Set terminal point of an event.

Then, he singles out the class of eventive predicate having the *set terminal point* property in such a way that P is one of them if and only if any given event e in the extension of P is such that all of its parts which are in P have the same terminal point as e.

(55) $\forall P(STP(P) \leftrightarrow \forall e(P(e) \rightarrow \forall e'\ (P(e') \wedge e' \sqsubseteq e \rightarrow TP(e)=TP(e'))))$

Telicity, according to Krifka, is due to the presence of a predicate with the set terminal point property—that is, he characterises telicity in terms of the coterminativity of the whole event with its parts. It is then straightforward to verify that quantised eventive predicates are telic: the set of parts of e that are in the extension of the quantised predicate P consists only of e itself; therefore, the STP condition is (vacuously) satisfied. This explains the telicity of *eat an apple*, *drink a glass of beer*, etc. On the other hand, it is easy to see that cumulative

predicates lack the set terminal point property, thus making justice to their atelicity.[29]

Concerning the role of arguments, Krifka proposes that aspectual shifts are due to the transfer of the referential properties of the argument over those of the eventive predicate; this is possible because θ-relations can behave as homomorphic mapping between the objectual and the eventive domain. Thus, the quantised nature of the reference of *an apple* is inherited by the predicate *eat an apple*; conversely, the cumulativity of *apples* determines the cumulativity of *eat apples*.

In the end, taking for granted the quantised reference of *an apple*, *many books*, etc., telicity is a side effect of the quantisation of predicates such as *eating an apple, reading many books*, etc.; this in turn is determined by the homomorphic θ-relation applying to a direct object which has quantised reference. In the end, the part structure of *an apple* is mirrored by that of the events in the extension of *eat an apple*, this way realising the regularity/incrementality approach within an algebraic setting.

---

29. As observed in the text, the set terminal point property works as a characterisation of telicity because it applies vacuously to predicates with quantised reference. One might wonder whether there is any class of predicate to which the STP property applies non-vacuously. To this end, we would need a predicate P such that if e is in P then e has proper subparts which are in the extension of P and which share the same set terminal point as —that is, predicates which are telics but do not have quantised reference. If no such a predicate exists in natural languages, then a theory exploiting the set terminal point notion should provide an explanation for this fact. Also, in case no such a predicate exists, it is reasonable to ask whether the connection between quantisation and telicity should not go the opposite way with respect to that explored by Krifka—namely, that quantisation/inhomogeneity is determined by telicity.
Krifka (1998, p 215) claims that the predicate corresponding to *eating for three hours* is both non-quantised and telic. That it is non-quantised can be seen by considering two simultaneous three hours long runnings. Their sum still falls under the same predicate, hence it is non-quantised. Telicity, on the other hand, can be proven as follows: suppose that the predicate *P=eating for three hours* is not telic. Then, for an e such that $P(e)$ there is a proper part e' such that $P(e')$ and e' is not final in e. Then, there must be a proper part e'' of e such that $e=e'+e''$. Given that τ is an homomorphism, we have $\tau(e)=\tau(e')+\tau(e'')$. By hypothesis, both e and e' last three hours, hence e'' should have a null duration, which is impossible in Krifka's framework. This is all right as far as the formal account goes. However one could be dubious about the utility of a notion of telicity that extends to such predicates as *eating for three hours*. After all, sentences such as **John ate for three hours in three hours* are at least odd. Even if the oddity is attributed to some pragmatic factor—why specifying twice the duration of the event?— there are other examples that show that the combination of *for-X-measure* phrases with *in-X-time* ones is generally disallowed. If so, we lack clear empirical criteria to tell whether the predicates in question are telic, and remain with the doubt as to whether, at least in some cases, the formal characterisation adequately captures linguistic facts.

Krifka's proposal has been quite influential and has inspired a number of works exploring the consequences of the theory in various languages (Filip 1992, 1999; Ramchand 1997; Singh 1998). Criticisms have also been raised though. For instance, Verkuyl (1993, 1999) points out that some of Krifka's basic properties do not work the way they should. To illustrate, Verkuyl observes that there is reason to believe that every verb and every thematic relation are cumulative. Hence the only remaining place where to look for in order to account for the differences between (56a) and (56b) are the different denotations of the direct objects:

(56) a. John ate an/some/most of/all the apple(s).
b. John ate apples.

Krifka treats bare plurals as involving existential quantification over the size of the denoted set, analysing the bare plural *apples* as

(57) $\exists y \exists n$ (... Apple(y, n) ...).

where *Apple(y, n)* means that y is a set of apples of size n. This makes bare plurals basically akin to such expression as *some apples*, in that they both involve an unspecified number of objects. However, *some apples* induces telic readings, as in

(58) John ate some apples in ten minutes

whereas bare plural objects induce atelicity. Thus, if Verkuyl observation is correct, the different status of (56a) and (56b), and the role of arguments in determing it, is unexplained.

Similarly, Schein (1992) observes that if *apples* has cumulative reference then *some apples* or *at least five apples* has it too. For if *some apples* applies to x and y it surely applies to $x+y$ as well. In the same vein, if both x and y are *at least five apples* x, then $x+y$ is so too. Thus, the cumulative/quantised reference distinction does not explain the contrasts above. In a way, Krifka (1998) agrees with his critics, and proposes a scope solution in which *some apples*, in a sentence such as

John ate some apples, is scoped out, leaving a variable in situ. Such a variable has singular reference, as all variables, this way providing the VP predicate with the necessary quantisation. However, the solution cast doubts as to the explanatory value of the quantised/cumulative reference distinction, for it first distinguishes between, e.g., *some apples* and *an apple*, and then needs some extra mechanism to account for their similarities.

Turning to telicity, Schein (1999) points out that, in view of examples like (59), coterminativity—that is, the set terminal point property— fails to characterise telicity:

(59) John filled the room (up) with smoke.

Suppose that John is a heavy smoker and that he keeps on pouring smoke into the room. Then it seems that (59) can be uttered truthfully at different times, once a certain threshold of smoke thickness has been exceeded. Let t_1 be the time at which the threshold is reached, and let t_2 be a time after t_1. If someone utters (59) at t_2 then, Schein argues, such an utterance seems to be made true both by the telic event e_1 consisting in John filling the room up to the threshold quantity of smoke—an event which has terminated at t_1; and by the telic event e_2 performed by John up to t_2. Clearly, the two events are not the same: in particular, e_1 is a proper part of e_2; however, both apparently fall under the same telic predicate *filled the room (up) with smoke*. If accepted, this scenario is beyond the reach of Krifka's account. He would have to hold that the relevant predicate is not telic, given that it applies to two non co-terminative events e_1 and e_2, the first of which is clearly a proper subpart of the second.

Finally, Schein (1999) casts doubts also on the overall rationale of the algebraic approach to aspect—namely, that aspectual phenomena are to be explained via the existence of a regular (homomorphic) relationships between the parts of the object's denotation and those of the event. Consider the following example:

(60) John filled the balloon with helium.

Suppose this sentence is uttered at a country fair, where John is selling coloured balloons after inflating them with helium. The sentence is telic; therefore an

incremental relationship between the object's denotation and the event must be available, making for a situation in which each part of the balloon is filled by some helium. However, it is not clear what such balloon-parts would be. Before being inflated, the balloon is a flat piece of plastic and there is no part of this object which is filled, or going to be filled with the helium. Even if we think of the balloon as a 'potential' volume, the homomorphism/regularity explanation does not work. A given quantity of helium does not occupy a fixed portion of the potential volume, but disperses uniformly into the whole volume. Incrementality, however, requires that each part of the gas affects a distinct part of the volume. Hence, it must be concluded that the telicity of (60) does not depend on the existence of a regular/incremental relationship between the parts of the 'potential' volume and those of the event/helium. If accepted, the criticism shows that the very attempt at characterising aspectual phenomena in terms of a regular/incremental relationship between eventive and objectual parts is deemed to failure.

6.2. The Two Events Theory of Telicity

In §2 we proposed a generalisation to the effect that the telicity/ atelicity distinction does not apply to non-terminative predicates. This, we think, is an important property of which calls for an explanation. In §5, on the other hand, we argued that the terminativity/ non-terminativity distinction is to be accounted for by resorting to the topological properties of eventive domains.

In this section we will develop a theory of telicity/ atelicity that capitalises on the dependence of such a distinction upon terminativity, crucially exploiting the topological set-up introduced in §5. Moreover, we will show that the theory derives some of the relationships between the eventive and the objectual domain, which motivated the accounts discussed in the previous section.

As seen, terminativity corresponds to topological closure on eventive domains. That is, terminative predicates are subject to a constraint to the effect that they denote topologically closed events. It must be observed that there are (at least) two formally equivalent ways of building topology in a given space: either by taking topological closure as the primitive notion, or by taking the notion of a *boundary* as a primitive. In §5 we followed the former route, and informally showed that

closed/terminated entities can be put in a one-to-one correspondence with open/non-terminated ones (interiors) and boundaries, in such a way that the former amount to the mereological sum of the latter. On the other hand, if topology is built out of the notion of boundary, it can be shown that derived entities exist—namely, closed/terminated and open/non-terminated events—where the former correspond to the sum of an open event and a boundary.

We suggest that these two formally equivalent ways of talking about topological entities and their properties—hence about terminativity and non-terminativity —are distinguished by language. That is, language tells apart means for providing for closed/terminative entities in a direct way, by imposing a closure/terminativity requirement, from means relying on the provision of limiting points/boundaries. Atelicity corresponds to the first strategy whereby terminativity is realised in a direct way, cf. the *t* predicate of §5. Telicity, on the other hand, corresponds to the second strategy: terminativity/closure is realised by providing a second eventive entity—namely, the boundary (telos) of a non-terminated event.

If correct, such an account would naturally explain generalisation (29c): telicity and atelicity only make sense with terminative predicate because they are the two faces (the two species, one might say) of terminativity. Moreover, it would make the differences visible already in logical forms. When the first, direct strategy—the one leading to atelic predicates—is followed, only one event (variable) is present in the logical form. The second strategy, on the other hand, requires *two* eventive variables: one for the non-terminated event in the denotation of the basic predicate, and the other for the boundary. Continuing to use the predicate *t* to range on closed/terminated events, and using the relation *rb(e, e')* to indicate that event *e* is the right boundary of event *e'*, we have the following logical form schemata for atelic and telic sentences:[30]

(61) a. $\exists e\ (\phi(e) \wedge .... \wedge t(e) \wedge ....)$ atelic

b. $\exists e\ \exists e'\ (\phi(e) \wedge .... \wedge rb(e, e') \wedge ....)$ telic

30. We have moved from unqualified boundaries to consideration of the right boundary of an event for simplicity. On the one hand, it is clear that terminated events do have a right boundary; on the other, it is reasonable to assume that all the events we are considering have a left boundary because of the very fact that they occur. Thus, the relevant distinction is that between events having and events lacking a right boundary.

The idea that the logical form of telic sentences involves two events rather than one is not new. It was present in Pustejovsky (1995) and in Tenny (1993); more recently it has been discussed by Higginbotham (2000) who takes the two variables to refer to the *processual part* of the telic event and to the *telos* itself, respectively. Thus, he assigns the telic (62a) the truth conditions in (62b):

(62) a. John ate an apple.
b. $\exists\langle e_1, e_2\rangle\exists x(\text{eat}(\langle e_1, e_2\rangle) \wedge \theta_1(\langle e_1, e_2\rangle, \text{John}) \wedge \theta_2(\langle e_1, e_2\rangle, x) \wedge \text{apple}(x))$

Concerning the atelic (63a), in our framework it is given the truth conditions shown in (63b):

(63) a. John ran
b. $\exists e(\text{run}(e) \wedge \theta(e, \text{John}) \wedge \text{t}(e))$

6.3. n-X-time and for-X-time adverbials

An interesting feature of the two-events analysis is that it is able to provide a new and simple explanation for the distribution of *in-X-time* and *for-X-time* adverbials. For instance, Higginbotham (2000) proposes that *in-X-time* adverbials are expressions taking two events and measuring the time span between them:

(64) a. John ate an apple in two minutes.
b. $\exists\langle e_1, e_2\rangle\exists x(\text{eat}(\langle e_1, e_2\rangle) \wedge \theta_1(\langle e_1, e_2\rangle, \text{John}) \wedge \theta_2(\langle e_1, e_2\rangle, x) \wedge \text{apple}(x) \wedge \delta_m(e_1, e_2)=2)$

The truth conditions in (64b) differ from those in (62b) in that the former contain a specification, contributed by the *in-X-time* phrase, to the effect that the *distance* from the onset of e_1 to the onset of e_2 (the telos) is 2, as measured in minutes by the function δ_m. That is, *in-X-time* adverbials can be seen as providing a *metric* on eventive domains.[31]

---

31. Metric is a neutral term, committing only to the existence of a function from pairs of entities of a domain into positive reals (or integers). In particular, it avoids commitment to time spans,

From the fact that *in-X-time* adverbials have two eventive positions, it follows that they aren't available with atelics, given the simplex-event structure of the latter. Thus, ordinary utterances of (65) are not felicitous because one of the two eventive positions of the adverbial remains unsaturated:

(65) #John walked in two months.

However, suppose someone utters (65) while talking about John's childhood:

(66) He was such a lovely baby. Think that he walked in two months!

Sentence (65), as used in this discourse, is acceptable, and can be paraphrased as saying that 'John acquired the ability of walking in two months after his birth'. Thus, the contrast between (65) and (66) can be explained by hypothesising that in the latter the first point/event needed by the *in-X-time* adverbial is contextually provided as John's birth, and the second by the inception of its walking ability. Similar considerations hold for the marginal, but still intelligible (67):

(67) ??La conferenza piacque a Mario in due ore.
Mario liked the conference in two hours.

In this case, *in due ore* (in two hours) measures the distance from the beginning (the left boundary) of the conference and the point at which Mario started to like it. Eventually, far from requiring aspectual coercion mechanisms, examples such

---

hence to times. Given that in this paper we never resort to such entities, we prefer to remain as much neutral on this point as possible. Finally, metric functions have a well-known connection with topological spaces, since each metric can be associated with a suitable topology (Kelley 1956). This stresses the importance of the topology approach to events.
An interesting side effect of considering an abstract notion of metric is that is makes available different interpretations of *in-X-time* phrases, besides the 'geometrical' one suggested by time spans. For instance, *in-two-hours(x, y)* could be seen as measuring the effort, or event-stuff needed to pass from the onset of x to (that of) y. This physicalist interpretation might turn out to be useful in view of the proposal we are going to make for *for-X-time* phrases as providing functions measuring the amount of eventive stuff a given event *contains*. If the approach is correct, the two adverbials would basically contribute the same meaning (quantity of eventive stuff), and the differences would reduce to their arity: *in-X-time* phrases are binary, whereas *for-X-time* adverbials are unary.

as (66) and (67), in which a typical atelic predicate enters a telic construction, can be given a straightforward explanation within the two-events theory framework.[32]

The two-events theory of telicity suggests an interesting account of *for-X-time* adverbials too. Following Larson (1999) we take them to measure event quantities—namely, *for X hours* as applied to event *e* states that the quantity of eventive stuff *e* contains is X, as measured in hours. Now, the observations above concerning the impossibility of modifying a continuous imperfective predicate by using *for-X-time* can be understood by saying that event measuring functions only apply successfully to closed events. This would make sense, under the natural hypothesis that you can't tell the duration/amount of event-matter of a non-terminated event.[33] If so, *for-X-time* adverbials presuppose that the event they modify is terminated/closed, so that *for an hour* corresponds to the following predicate (where we have used ∂ for indicating the presupposition):

(68) $\lambda\, Pe((\mathrm{P}(e) \wedge \mu_{\mathrm{h}}(e)=1) \wedge \partial(\mathrm{t}(e)))$

Thus, a phrase such as *for two hours* combines with a closed/terminated event, partitions it into hours-quantities, and returns the number thereof.[34] Why, then, are

---

32. For an account of this and other so-called 'aspectual shifts' in terms of coercion, see de Swarts (1998).

33. The considerations here are very similar to those made at the end of §5 while discussing the possibility of terminated and non-terminated events to be temporally localised.

34. Following Krifka (1989, 1998) and Larson (1999) we assume that these measure functions are extensive:

(i) μ is an extensive measure function for a domain E with respect to concatenation $\bullet$ iff:

a. μ is function from E into the set of positive real numbers $\Re^{+}$;

b. $\forall x,y \in E(\mu(x \bullet y)=\mu(x)+\mu(y))$; additivity

c. $\forall x,y \in E(\mu(x)>0 \wedge \exists z \in E(x = y \bullet z) \rightarrow \mu(y)>0)$ commensurability

In our case, the concatenation function is replaced by the part-of relation P. This requires some readjustments to (ib), due to the fact that, P being not commutative, if entities *x* and *y* overlap then the contribution of the common part should not be counted twice for the purposes of measurement. For instance, the sum of two overlapping quantities of sugar, each amounting to 3 and 2 kilos respectively, is less that 5 kilos – see Krifka (1998) and Larson (1999).
Despite similarities, however, our treatment differs from that in Krifka (1989, 1998), who maintains that the measure functions of *for-X-time* adverbials is primarily concerned with time spans. More precisely, he takes them to apply to the temporal trace of events, as provided by the

for-X-time adverbials impossible with telic predicates? According to our proposal, the reason is that telicity is a property of two-events structures, whereas *for-X-time* adverbials can only modify simplex variables. Can (68) apply only to the processual part of a telic event? It could, but then we would have a presupposition failure, since the processual part, as it appears in the logical form, is not closed/terminated (recall that with telic predicates terminativity is due to the simultaneous presence of the processual part and of the telos; the two together form a terminated/closed event, but the former, by itself, is non-terminated). We might ask, then, whether the adverbial can apply to the second event, the telos. The following examples are evidence that it actually can, provided that we understand the second event not simply as a boundary, but as the resulting state of the processual part (which, in turn, bounds the latter):[35]

(69) John left for half an hour.

Thus (69) means that John remained outside the room (the resulting state) for half an hour, and then re-entered. Ultimately, *for-X-time* phrases can combine with individual variables for every sort of eventualities, including states, cf. (70),

---

temporal trace function $\tau: E \rightarrow T$. Our measure functions, as explained in the text, directly apply to the eventive domain, and purport to measure the quantity of event of a given individual $e \in E$. That is, *for-X-time* phrases measure event quantities rather than time quantities. Important differences between the two proposals, discussed by Larson (1999), arise in contexts such as the following. Consider two singing event: the first is performed by John, starts at 2 o'clock and ends at 4; the second singing event is performed by Mary, starts at 3 o'clock and ends at 5. Now the following two statements seem both correct:

(ii) a. John and Mary sang for four hours.
b. John and Mary sang for three hours.

If *for-X-time* adverbials measure time spans, as in Krifka (1989, 1998), then (iib) is accounted for: the temporal trace of the event, which is the sum of the individual singing starts at 2 o'clock and ends at 5 o'clock. This is because the temporal traces of the two events share a part that, as said before, must not be counted twice. However, sentence (iia) cannot be accounted for, given that, as far as temporal traces go, the situation is the same as in (iib). If we take *for-X-time* phrases to measure event quantities, (iia) can be explained. Sentence (iia), on the other hand, reports about two distinct singings (say, at different locations), which do not overlap in the eventive domain. Therefore, the total quantity of event-stuff the two singings contain correctly amounts to four hours.

35. This observation is related to an important perspective on telicity and telos—namely, that they be more correctly analysed as requiring the presence of a resultant state which, in turn, bounds the processual part, as in Tenny (1994); we won't comment on this possibility any longer.

provided that they are closed/terminated, as the contrast between (71a) and (71b) exemplifies:

(70) John loved Mary for three years.

(71) a. Mario ha amato/amò Maria per tre anni.
b. *Mario amava Maria per tre anni.
Mario loved (IMPF) Mary for three years.

What is excluded, if our approach is correct, is the possibility of *for-X-time* adverbials to modify telic predicates. This is impossible for the simple reason that they apply to simplex eventive variables, whereas two-event variables are needed for the purposes of telicity.[36]

---

36. As Larson (1999) points out, an advantage of this approach to *for-X-time* phrases is that it naturally extends to measure functions which partition their domain differently than by resorting to ordinary 'time' periods:

(i) a. John ran for two miles.
b. $\exists e(\text{run}(e) \wedge \theta(e, \text{John}) \wedge \tau(e) \wedge \mu_{\text{miles}}(e)=2)$

In this case, the amount of event-stuff contained by the relevant event is measured in *miles*, rather than in hours or minutes. The possibility of resorting to functions which measure along different dimension is well known in the objectual domain, where we can talk about *two spoonful of sugar*, *three tea cups of flour*, *one Kilo of salt*, etc.
This gives us the possibility of reconsidering an argument about the possibility of combining *for-X-measure* adverbials with *in-X-time* phrases, discussed in fn.29. There we observed that the impossibility of (i) can be explained by resorting to pragmatic reasons: if both *in-X-time* and *for-X-time* adverbials ultimately measure the temporal trace of an event, then (ii) would simply state the same fact twice:

(ii) *Mario ha corso per due ore in due ore
Mario ran for two hours in two hours.

If so, we would expect something like (iii) to be acceptable:

(iii) *Mario ha passeggiato per due chilometri in un'ora.
Mario walked for two kilometres in one hour.

The unavailability of the sentence shows that *in-X-time* adverbials cannot attach to complexes of the type *VP+for-X-measure*. If, as we have hypothesised, the possibility of accepting *in-X-time* phrases is criterial for telicity, we must conclude that *VP+for-X-measure* phrases are not telic, contrary to Krifka's proposal. This would not be a surprise in our framework: *VP+for-X-measure*

6.4. Homogeneity

Our approach to *for-X-time* adverbials apparently neglects a factor to which resort has been often made in the literature—namely, the role of the homogeneity of the predicates to which *for-X-time* phrases apply (Bach 1986; Krifka 1992, 1998; Higginbotham 2000). In our account, *for an hour* adverbials are felicitous only with terminative a-telic events because the two-event nature of telicity goes beyond the power of monoargumental *for-X-time* adverbials. Many theory, however, attempt at explaining the facts discussed in the previous section, by establishing some sort of relationship between one property, a-telicity, and the other, homogeneity, so as to logically reduce the former to the latter. In this section we investigate the status of the notion of (in-)homogeneity in the theory developed so far, trying to understand if and how it can contribute to improve the.

Let us start by considering the relationships between homogeneity and telicity/ atelicity. It can be observed that the hypothesis (Higginbotham 2000) that homogeneity entails atelicity and/or applicability of *for-X-time* adverbials is not supported by the data. For, (72) displays a seemingly homogeneous predicate, and yet the adverb is ungrammatical:

(72) (Ieri pomeriggio) Mario dormiva (*per tre ore).
(Yesterday afternoon) Mario slept(IMPF) (*for three hours).

As already observed in §4, the event making (72) true, which is classified by the imperfective predicate *dormiva*, is homogeneous: any one of its parts is still classifiable by the very same predicate:

(73) Alle tre/dalle tre alle quattro di ieri pomeriggio Mario dormiva.
At three/from three to four o'clock of yesterday afternoon Mario slept (IMPF).

---

phrases contain only one eventive variable, hence they are atelic, and unless something supplies an extra eventive variable, they cannot combine with *in-X-time* adverbials.

The reason why the predicate in (72) is not atelic, we have argued, is that the continuous imperfective verbal form provides a non-terminated event, whereas *for-X-time* phrases and atelicity only make sense with closed/terminated ones.

However, homogeneity and terminativity together entail atelicity. Any terminative event, in fact, is either telic or atelic, and as we will see in a moment, telicity entails in-homogeneity. If in-homogeneous atelic predicates did not exist, then homogeneity could still be a useful notion to predict atelicity in the presence of terminativity. The existence of in-homogeneous atelic predicates is clearly an empirical matter, and at present we have no positive evidence in favour of it. Pending a final word on the question, it seems fair to conclude for the time being, that homogeneity is by and large unnecessary to the characterisation of the telic/ atelic distinction.

Let us turn, now, to the relationships between telicity/atelicity and in-homogeneity. In a framework such as Krifka's, the telicity of a given predicate is a consequence of its being quantised, the latter, in turn, stemming from the interplay between properties of the thematic relation (graduality) and those of the direct object (quantisation). Since quantised predicates are always in-homogeneous, it can be concluded that in-homogeneity is a prerequisite for telicity.

In the present framework, where the telic/ atelic distinction is characterised by means of the simplex/two-events divide, it seems natural to go the other way around, and try to derive in-homogeneity from telicity (Higginbotham 2000). The idea is that, given the predicate corresponding to, e.g., *eat an apple*, if such a predicate classifies (the pair consisting of) the processual part and the telos of an event, then it cannot apply to subparts of the same event since no one of them has the same telos as the whole. That is, the in-homogeneity of telic predicates is crucially due to the telos and the predicate classifying it. So suppose that the predicate corresponding to *eat an apple* has the following form:

(74) $R = \lambda ee'.(\mathrm{P}(e) \wedge \mathrm{Q}(e'))$

where P applies to processual parts and Q to their telos. To implement the intuition above, we must characterise Q so that the entire predicate R does not extend to parts. For instance, the following would not work as a spell out of R:

(75) $\lambda ee'.(\text{eat}(e) \wedge \theta_2(e, x) \wedge \text{telos}(e'))$

Let us understand the (thematic) relation $\theta_2(e, x)$ as meaning that the eating event *e applies* to the apple *x*. Let $p_1=\langle e_1, e_2\rangle$ be the eventive pair corresponding to the telic event of eating the whole apple, and $p_2=\langle e_3, e_4\rangle$ be the eventive pair corresponding to the telic event of eating the first half of the same apple, a subpart of the whole event. Then (75) could apply to both p_1 and p_2. The processual parts e_1 and e_3, in fact, are both events of eating applying to apple *x*, and the predicate *telos* holds of both e_2 and e_4. What is needed to implement the intuitions above concerning the relationships between telicity and in-homogeneity is a finer classification of the telos, capable of telling apart the boundary of p_1 from the one of p_2. In the case of *eat an apple* it must enable us to connect the telos of p_1 to the whole apple *x*, and the telos of p_2 to the half apple. If so, we can maintain that in a sentence such as *John ate an apple*, the predicate classifying the processual part is provided by the verb—i.e., *eat(e)*. The classification of the telos, in turn, depends on information coming from other sources—e.g., the direct object (or locative phrases).

To construe the complex telic predicate, we proceed as follows: let us understand $eat(\langle e_1, e_2\rangle)$ in (64) as follows:

(76) $\text{eat}(e_1) \wedge \text{rb}(e_2, e_1)$

As required, we let *eat* classify only the first event, the processual part, and explicitly state that the second event is the telos (the right boundary) of the first. Then, turning to the thematic relation $\theta_2(\langle e_1, e_2\rangle, x)$, let us spell it out as follows:

(77) $\theta_2(e_1, x) \wedge e_2=f_{\theta_2}(x)$

Here $f_{\theta_2}(x)$ is a function from objects to events built out of the thematic relations, and classifying the telos/boundary. That is, we regard the thematic relation as functional, at least as far as the second event is concerned, with the intention of having the boundary/telos classified by combining the contributions of the

thematic relation with that of the (referent of the) direct object. With this, the telic predicate corresponding to *eat x (an apple, two sandwiches)* is, e.g., (78):

(78) $\lambda ee'.\exists x(\text{eat}(e) \wedge \theta_2(e, x) \wedge e' = f_{\theta_2}(x) \wedge \text{rb}(e', e) \wedge \text{apple}(x))$

We have a predicate applying to two eventive variables in such a way that the first is a non-terminative event of eating directed towards an apple, and the second is the boundary of the former. Moreover, the telos is identified through the contribution of the thematic relation holding between the non-terminative event and the apple.

Given (78), there are proper parts of the telic event of eating the apple which such a predicate cannot apply to; for instance, it would not apply to p_2 as defined above. In this case, in fact, the telos e_4 cannot be regarded as being in a functional relation with the whole apple x—that is, $e_4 \neq f_{\theta_2}(x)$. Thence the predicate in (78) is non-homogeneous.

The full logical form for a sentence such as (79a) is therefore (79b). Henceforth, we will refer to the predicate in (80), which incorporates the contribution of the direct object, as the *telic predicate.*

(79) a. John ate an apple.
b. $\exists e_1 e_2 x(\text{eat}(e_1) \wedge \theta_1(\langle e_1, e_2\rangle, \text{John}) \wedge \theta_2(e_1, x) \wedge \text{apple}(x) \wedge e_2 = f_{\theta_2}(x) \wedge \text{rb}(e_2, e_1))$

(80) $\lambda ee'.Qx(e' = f_{\theta_2}(x) \wedge \text{rb}(e', e))$

In conclusion, the notion of in-homogeneity is parasitic upon that of telicity. To prove this, we have relied on a conception of telicity as involving a form of singular reference; more precisely, the existence of the direct object individual variable turns out to be crucial for classifying the telos. In the next section we will discuss some consequences of this analysis.

Before concluding this section, let us comment on some consequences of our account of telos as the value of a function, f_{θ_2}, from objects to events. Modifying the constraints on such a function, we obtain different results concerning the identity conditions holding of telos. If we do not add any further requirement, and

stick to the definition given, the telic predicate allows for cases in which there are subevents of a telic event sharing the telos with the whole. With *eating an apple* this amounts to the possibility that some, possibly all, (telic) final subparts have the same telos as the whole.[37] For instance, the telic events of eating the second half, the last quarter, etc. of the apple could be considered as having the same telos as the whole. Notice, though, that nothing forces this conclusion—that is, the definition given above for the telic function does not commit to such an identity thesis about the telos of the whole and those of its final subparts. It only makes it possible to express it, if one is willing to do so.

The opposite thesis, to the effect that no proper part of a telic event can have the same boundary as the whole, can be explicitly enforced by requiring that the telic function be one-to-one. If so, final subparts have distinct, albeit possibly temporally coinciding, boundaries.[38]

In these respects, therefore, the consequences of our approach are very different from those of Krifka's (1992, 1998). As discussed in §6.1, he takes as a defining property of telic predicates that every subparts to which they apply have the same terminus as the whole. Our theory, correctly we think, makes coterminativity a matter of independent choices, and does not assign it any explanatory role for the telic/ atelic distinction. This way, it is possible to accommodate Schein's observation concerning sentences such as (81):

(81) John filled (up) the room with smoke.

If Schein's judgements (cf. §6.1) are accepted, it is entirely possible for the telic predicate to apply to two different event pairs: $p_1=\langle e_1, e_2\rangle$ and $p_2=\langle e_3, e_4\rangle$ in such a way that $P(e_1, e_3)$, and $e_2 \neq e_4$. That is, the two events of filling the room up with smoke are such that the processual part of the first is a subpart of the processual part of the second. Moreover, they have different telos, possibly reflecting the fact that the final states attained by virtue of p_1 and p_2 are different, though of the same kind (=the room is filled up with smoke).

---

37. A part e of an event e' is final in e' iff there is no other part of e' which is after e.

38. The telos of the whole might then be taken to be the mereological sum of the telos of the final parts. Or, we might want to endorse the (metaphysical) view of telos as *fiat* boundaries, rather than *bona fide* ones, see Smith and Varzi (1999).

Turning to another consequence of our proposal, we hypothesise that the differences between atelicity/ telicity are explicitly encoded in the logical form as a distinction between simplex/ two-events structures. Therefore, the distinction is primarily linguistic and not ontological. We also agree that a given situation in which a terminated event occurs can be described both by means of an atelic/simplex event construction and by a telic/complex event one. Both constructions, in fact, report about terminated events, the difference being whether the decompositional strategy (consisting in presenting the non-terminated event together with its boundary) is followed or not (by directly referring to the closed/terminated event). In case it is, telicity arises; otherwise we have an atelic description—that is, telicity amounts to making the telos/boundary linguistically available for referential purposes. This move does not require modifications to the underlying ontology: whenever there is a terminated/closed event the ontology has a boundary for it. In this respect, therefore, we differ from Higginbotham (2000), who maintains the strong view that simplex events are ontologically distinct entities from complex ones.

We also differ from Krifka, though, who takes the difference to be simply a matter of description (Krifka 1998, p. 207). According to him one and the same event of running can be described both by means of the atelic sentence in (82a), and by means of the telic (82b):

(82) a. John ran.
b. John ran home.

The logical forms he assigns to these two sentences are substantially identical, as far as the number of eventive variable they contain is concerned. For Krifka, the differences are in the type of predicates applying to the eventive variable: an atelic predicate in (82a) and a telic one in (82b). Such a difference, however, does not show up in the logical form. The consequence is that, under appropriate variable assignments, the two predicates might turn out to classify the same event.

According to our theory, however, this is never the case. Examples (82a) and (82b) have different logical forms: in the atelic case there is a single eventive variables, whereas in the telic case there is a complex event structure consisting of a processual part and a telos/boundary—that is, two eventive variables. Thus,

atelic and telic sentences differ because the former are made true by single terminated events, whereas the latter are made true but pairs of events, a non-terminated one and its boundary/telos. Thus atelic and telic predicates never classify the same events.

An important consequence is that the decomposition of terminated/closed events into an open part plus a boundary, which is always available at the ontological level, does not automatically carry over to the linguistic realm: if $p_1=\langle e_1, e_2\rangle$ is a telic event, and $e_3=e_1+e_2$ is the terminated/closed event corresponding to the sum of the components of the former, then, despite the ontological equivalence, p_1 can only make true the telic sentence (82b) failing to do so with the atelic one. Vice versa, e_3 can only make true the atelic (82a), failing to do so with the telic counterpart. The sum of the two components of what we have been sloppily calling 'the telic event' might well be identical to the event classified by the atelic predicate, but, the point is, telic predicates require two events and do not apply to the same entities (simplex events) as atelic ones.

This emphasises the point that the notion of telos is linguistic, and not ontological. Every time there is a terminated event there is a boundary in the ontology. This doesn't mean, however, that there is also a 'telos'. A telos is the 'linguistic' expression of a boundary.[39] As a consequence, it cannot be maintained that telic and atelic sentences can be used to talk about the same event; rather, we must concede that telic and atelic sentences can be used to talk about the same situation or scene (borrowing a term from Schein, forthcoming) by referring to different events.[40]

---

39. Some authors (e.g., Krifka 1989, 1992; Filip 1998) describe the distinction between atelic and telic predicates in terms of *arbitrary* vs. *natural* endpoints; see also our *privileged endpoints* of §1. In the present approach the distinction is superseded by that between the availability vs. non-availability of a variable for the boundary in the logical form. In this sense, the end-points of telics are no more natural than the end-points of atelics in any meaningful way. In both cases boundaries are ontologically available, since the events in question are terminated/bounded. However, they are linguistically relevant only with telics, because only in this case they are represented in the logical form. Similar considerations extend to the notion of an *intended endpoint* (Depraetere, 1995). In general, all these notions and distinctions seem superfluous once the correct distinctions are made. Interestingly, that the mentioned notions and concepts are irrelevant and misleading is shown by the possibility of resorting to telic or atelic sentences to talk about the same situation, as discussed in the text. If it is true that (80a) and (80b) can be used to describe a single action performed by John, then, clearly, the telos/end-point/boundary in question cannot be in one case arbitrary and in the other natural, or intended and non-intended, for it is in both cases the same boundary.

40. It must be noted that the procedure for identifying the telos we discussed in the text—namely,

7. The role of arguments

In this section we address two problems. The first is raised by the well-known contrasts exemplified below:

(83) a. John ate an apple in/ *for two minutes.
b. John ate apples/beef *in / for two minutes.

(84) a. Mario ha mangiato una mela in/ *per mezz'ora.
Mario ate an apple in/ for half an hour.
b. Mario ha mangiato mele / manzo *in/ per mezz'ora.
Mario ate apples/ beef in/ for half an hour.

As already observed, in languages such as English and Italian the availability of a telic vs. an atelic readings with certain verbs depends on the nature of the DP realising the direct object: bare plurals (BPs) or mass nouns (MNs) force atelicity, whereas in the other cases we have telicity.

In §6 we critically reviewed the idea that the different aspectual properties of the sentences in (81) and (82) are to be addressed by hypothesising a regular (incremental) relationship between the denotation of the direct object and that of the verb. We must now show that the two-events theory developed in §6.4 can provide a better account of the role of arguments in determining the telic/atelic distinction.

As stated at the end of the previous section, we believe that singular reference—that is, the availability of an individual variable for the direct object—is crucial for characterising telicity. More precisely, the presence of a singular variable for the argument enables the telic function to properly work, classifying the second eventive (telic) variable. If our theory is on the right track, then the atelicity of (83b) and (84b) shows that the relevant LFs do not host an individual variable.

---

by the crucial contribution of the direct object—does not carry over to other cases, e.g., those in which a major role is played by direction PP, as in *John ran to the store*, or Schein's sentence (81). We will briefly discuss directional PPs in the next section, whereas won't have much to say about the other cases.

The second problem we are going to address concerns the origin of the second eventive variable that the two-events theory of telicity hypothesises. There are two possibilities: either we follow Higginbotham (2000) and we take the lexical entries of most ordinary eventive verbs to be ambiguous, allowing them to provide both for a single eventive variable, yielding atelic readings, or for two eventive variables, suitable for telicity. Or we might take the choice between simplex/complex events to be basically a matter of morphosyntax. In this case, eventive verbs are not ambiguous, and always introduce just one eventive variable; some other phrase/functional projection is responsible for the second variable, and we might expect that syntax has a major role to play.

In this work, we want to explore the second possibility, the structural hypothesis. Besides considering Italian, we will also discuss evidence from Hindi (Singh 1991, 1998; Mohanan 1997) where two interesting phenomena can be observed. Firstly, the presence of BPs/MNs is compatible with telicity. Secondly, these languages morphologically distinguish between telic and atelic predicates, contrary to English and Italian where the only overt distinction is that between perfectivity and imperfectivity.[41]

Hindi uses a particular *light* verb, *lena*, called the *explicator* that carries the perfectivity morpheme, and is responsible for completivity/telicity. Consider the following data (from Singh, 1998):

(85) a. maine aaj apnaa khaayaa
I-ERG today mine cake eat-PERF.
I ate my cake today.

b. maine kek khaa liya.
I-ERG cake eat take-PERF
I ate the cake

41. We are simplifying the theory as far as English is concerned. As shown in §4 and in Giorgi and Pianesi (1997), English does not have the perfective/imperfective distinction (with the crucial proviso for progressive forms made in §3). English eventive verbs invariably enter the syntax as perfectives, mainly for morphosyntactic reasons (poverty of verbal inflection). For the purposes of this section, however, we disregard this difference and treat English and Italian on a par.

(86) a. maine aaj apnaa khaayaa aur baakii kal khaùùgaa.
I-ERG today mine cake eat-PERF and remaining tomorrow eat-FUT.
I ate my cake today and I will eat the rest tomorrow.

b. *maine kek khaa liya, jo bacaa hai wo raam khaayegaa.
I-ERG cake eat take-PERF, what remain is that Ram eat-FUT
I ate the cake and Ram will eat the rest.

In (85a) the verb *khaa* (eat) is marked as perfective. The sentence is terminative but not completive/telic, as shown by (86a). Completivity/telicity requires the presence of the explicator *lena* usually glossed as *take*, cf. (85b). Given the presence of such a constituent, (86b) is odd, since it states that the telic event can be continued.[42] Note also that, as can be seen from the examples, Hindi nominal constituents are determinerless. In the presence of telic morphology, however, BP/MN direct object are interpreted as referential phrases.

Thus, the relevant generalisations seem to be that: when telicity has a morphological realisation which is independent from that of atelicity, as in Hindi and Urdu, the relevant verbal forms can turn a BP/MN object into a referential phrase, and instantiate the telos. When a language—e.g., English and Italian—exploits one and the same morphological form for atelics and telics—namely, morphological perfectivity—BP/MNs remain non-referential and aspectual compositional effects obtain. Moreover, the data suggest that the explicator *lena* is responsible for introducing the second eventive variable. If so, we can conclude that the presence of the variable corresponding to the telos/boundary is due to a functional category which is lexicalised in Hindi-like languages, and is realised by a zero morpheme in English- and Italian-like ones. Thus we hypothesise the following structure for perfective telic predicates:

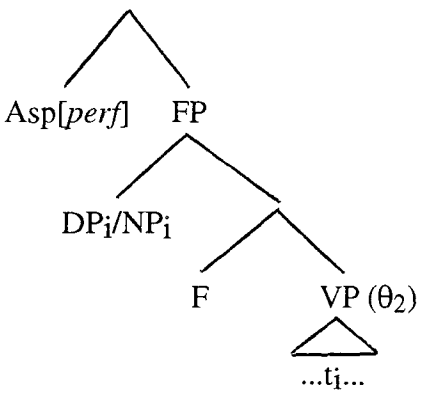
---

42. Notice that if Schein (1999) is right, the contrast in (84) is contingent on the meaning of *eat*. That is, it is a contingent fact that once the telos is attained the direct object of *eat* cannot be affected any more (since it has been consumed). The direct object of such verbs as *fill* would behave differently, and yet enter into telic constructions, so that a sentence such as (i) would be possible:

(i) John has filled the room with smoke and will continue to do so.

Such facts, even if confirmed, do not affect the possibility of using sentences such as (84a) and (84b) as a test for telicity, provided that we restrict their application to verbs like *eat*.

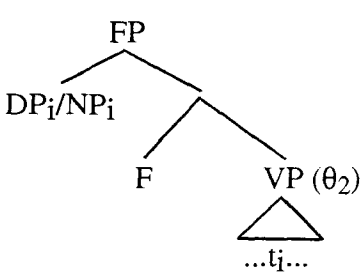
(87)



FP is the functional category projected by the explicator *lena* in Hindi, and by a zero morpheme in English and Italian. The head, F, provides an eventive variable, which is interpreted as the event boundary/telos in the manner suggested in §6.4. In order for this to be the case, Spec,FP must be occupied by a referential phrase, so that the functional thematic role is assigned to it.[43] Eventually, this yields the telic predicate discussed in §6.4, which in turn identifies the eventive variable of F. Finally, in (87) Asp only checks that the resulting eventive structure is terminated. It is predicted, therefore, that Asp can be absent, and yet telicity be available. This is what happened with the following sentence, which features the imperfect and is given the structure in (88b):

(88) a. Nel 1989 Carlo scriveva il suo primo articolo di linguistica.
In 1989 Carlo wrote(IMPF) his first linguistic paper.

b.



That is, for truth-theoretical purposes we propose that (88a) and (89a), where the verb is in the *passato remoto* (a typical perfective tense) are equivalent, both being assigned the logical form in (89b):

---

43. Concerning the reasons why the object raises to Spec,FP, we might follow those scholars (e.g., Borer, 1994) who hypothesise that this happens for case reasons.

(89) a. Nel 1989 Carlo scrisse il suo primo articolo di linguistica.
In 1989 Carlo wrote his first linguistic paper.

b. $\exists e_1 e_2 x$(write(e_1) $\wedge$ $\theta_1(\langle e_1, e_2\rangle$, Carlo) $\wedge$ $\theta_2(e_1, x)$ $\wedge$ first-linguistic-paper(x) $\wedge$ $e_2=f_{\theta_2}(x)$ $\wedge$ rb(e_2, e_1))

In this framework the English and Italian contrasts in (83)-(84) are due to the fact that when the direct object is a BP/MN, Spec,FP is either vacant or occupied by a non-referential phrase. In Hindi, on the other hand, the BP/MN can rise to Spec,FP and introduce a singular variable. The underlying hypothesis, therefore, is that the presence/absence of a referential phrase in Spec,FP is something that languages can, at least to a certain extent, control. In other words, languages may have, cf. Hindi and Urdu, or lack, cf. Italian and English, mechanisms forcing referentiality upon otherwise non-referential constituents. In this respect we might follow de Hoop (1992) and hypothesise that the relevant device is strong case. Roughly, for de Hoop *strong* (direct) case is assigned to referential objects, whereas *weak* (oblique) case is used for non-referential ones. Referential phrases are generalised quantifiers, or individual-referring expressions. Non referential phrases are predicative.

Adopting de Hoop's theory of strong/weak case, the differences between Hindi, on the one hand, and English/Italian, on the other, can be explained by hypothesising that the Hindi overt telicity marker *lena* can assign/check strong case in Spec,FP. This way, BPs/MNs (which by themselves are predicative) are turned into referential phrases, accounting for the telicity of (90a) and the atelicity of (90b):

(90) a. Us ne biiyar pii lii.
lit.: he ERG beer drink take-PERF
He drank (some salient amount of) beer.

b. Us ne biiyar pii.
lit.: he ERG beer drink-PERF
He drank beer.

English and Italian, where the counterpart of *lena* is a zero morpheme, do not have the possibility of controlling the referentiality of the argument in the same vein. In

these languages F does not assign/check strong case, therefore, BPs/MNs remains predicative, hence unfit to license the eventive F.

Concerning predicative phrases, we argue that they cannot enter semantic composition by the usual θ-theoretic mechanisms, but, we hypothesise, undergo semantic incorporation (Hoekstra and Moulder 1990; Borer 1994; van Geenhoven, 1997), forming a complex predicate.[44] According to van Geenhoven, in semantic incorporation the predicate contributed by the direct object is absorbed by the verb as the predicate of the variable corresponding to the internal argument. Thus, van Geenhoven hypothesises that verbs, when incorporating the direct argument, have the following meaning:

(91) $\lambda P_{\langle s, \langle e, t\rangle\rangle}\lambda w_s\lambda x_e\, \exists y(\text{Verb}_w(x, y) \wedge P_w(y))$

For example, assuming (92a) as the incorporating version of *eat*, we have (92b) as the complex predicate associated with the VP *[VP eat [NP apples]]*:

(92) a. $\lambda P_{\langle s, \langle e, t\rangle\rangle}\lambda w_s\lambda x_e\, \exists y(\text{eat}(x, y) \wedge P_w(y))$

b. $\lambda w_s\lambda x_e\, \exists y(\text{Verb}_w(x, y) \wedge \text{apple}_w(y))$

Therefore, in van Geenhoven's proposal incorporated BPs *are* existentially bound, the existential interpretation being provided by the verb itself. This solution can be criticised in two respects. In the first place, it requires the meaning of each verb to be ambiguous between the incorporating version (91) and the normal, non/incorporating one. Secondly, as it is, the proposal does not immediately fit our needs since they make the semantic contribution of the BP *apples* indistinguishable from that of a true existential as *some apples*, this way threatening to blur the aspectual distinctions we are trying to explain, and raising problems similar to those discussed in §6.1 in connection with a Krifka's proposal. In our terms, van Geenhoven's hypothesis for semantic incorporation is

---

44. Ultimately we conform to the idea that there are semantic composition mechanisms that crucially involve referential objects, hence individual variables. These are the common θ-assignment devices of generative grammar, which amount to saturating open thematic positions with individual variables, see Higginbotham (1985), Parsons (1990).

close to providing a referential treatment for BPs/MNs, whereas we are trying to express the fact that BPs/MNs do not contribute such a semantic constituent.

The first objection can be met by adopting a theory in which thematic role assignment is a structural fact (Chomsky 1995; Hale and Keyser 1993; Borer 1994). According to a version of such a general view (Borer, 1994), the particular interpretation a DP receives depends on the functional projection it enters in construction with in the course of the derivation. In our case, the direct objects of telic predicates license the telic variable (by contributing to the telic function) because they end up in Spec,FP. If the direct object does not leave the VP, and does not enter in construction with the appropriate functional category, then semantic incorporation obtains. That is, it can be proposed that direct objects that at LF are within the VP are interpreted as semantically incorporated in the verb. Both the processes leading to the interpretation of phrases in construction with the appropriate functional categories, and those responsible for semantic incorporation are driven by syntax, so that the need for stipulating a systematic lexical ambiguity for verbs does not arise.[45]

Concerning the second criticism to van Geenhoven proposal—namely, the fact that the existential closure on BPs/MNs introduces referential elements—it can be observed that such a process does not create a referential phrase which can move into Spec,FP. Referentiality, in fact, is a property of the whole predicate corresponding to [$_{V'}$ V BP/MN], and not of the BP/MN alone. As discussed by de Hoop (1992) and Ramchand (1997), incorporating phrases cannot move out of the VP, therefore the relevant singular variable is not available for entering the appropriate semantic configuration—namely, as part of the semantic contribution of a referential phrase raised to Spec,FP.[46]

---

45. Probably, it would suffice to assume the possibility of an existential closure process obtaining at a low level, e.g., within the VP, and affecting material that at LF is still within such a constituent. We will not pursue such a possibility any further, however.

46. There are two other possibilities. The first, suggested by van Geenhoven (1997) analysis of indefinites, is to described the contribution of the verb's meaning in dynamic terms; when playing the incorporating role, the verb changes the assignment sequence to a new one containing a value for, say, an unspecified amount of apples or beef. The logical form, however, doesn't contain any singular variable, nor a referential phrase is available at LF to occupy Spec,FP and license the telic reading.

The second possibility is that we simply conceive of the cases of semantic incorporation we are after as yielding a restricted predicate, so that the phrase corresponding to *eat apples* is associated with the following predicate:

The fact that week/incorporating phrases cannot move out of the VP, hence cannot move to Spec,FP, can be illustrated further. In Italian and English a sentence with a BP/MN is grammatical because FP need not be projected when semantic incorporation obtains. It is predicted, however, that a verbal form embodying, or always co-occurring with telicity, should be ungrammatical with BPs/MNs. This is what happens in Scottish Gaelic (Ramchand, 1997). This language differs from Hindi since it has only one perfective form. However, it also differs from English/Italian since such a perfective form is always telic. That is, *perf* always co-occurs with telicity/completivity, hence with F.

(93) Dh'ol mi leann.
I drank beer.

(94) *Dh'ol mi leann fad dà uair a thide.
Drink-PAST I-DIR beer for two hours.
I drank a beer for two hours.

(95) Leugh mi leabhar 'n taobh a-staigh dà uair a thide.
Read-PAST I-DIR book in two hours.
I read a book in two hours.

(i) λex(apple-eat(e) $\wedge$ Agent(e, x))

The predicate *apple-eat* is an hyponym of *eat*: in such a way that each instance of apple-eating is an event of eating. Its truth conditions, in θ-theoretic terms, would be given by (ii):

(ii) apple-eat$\langle e, x\rangle$ is true of objects e and x iff e is an event of apple-eating and x is the agent of e.

This would associate (iia) with a logical form which doesn't mention any variable for the direct object:

(iii) a. John ate apples
b. $\exists e$(apple-eat(e) $\wedge$ t(e) $\wedge$ Agent(e, x))

This is in line with our proposal that the atelicity of these sentences, in English and Italian, is due to the fact that the direct object does not contribute an individual variable. It also highlights the fact that cases such as *John ate apples/beef, drank beer, wrote letters*, etc. have the same logical structure as their intransitive counterparts: *John ate/drank/wrote*.

In Scottish Gaelic, strong case is the *direct* case and week case is the genitive. Given the co-occurrence of perfectivity with telicity, the F category, or its equivalent, must always be present. Therefore, the telic condition must always be available. However, if the object has week case, it cannot rise to Spec,FP and F cannot be licensed. That is, a week case marked object with the perfective form is ungrammatical:

(96) a. Chunnaic Calum a'chraobh
See-PAST Calum the tree-DIR.
Calum saw the tree.

b. *Chunnaic Calum na chraoibhe
See-PAST Calum the tree-GEN.
Calum saw the tree.

Thus our proposal is that in the cases discussed so far, the eventive variable corresponding to the telos/boundary is introduced in the derivation, and in the logical form, by a light verb projection F. Such a category can be lexicalised, as in Hindi, or be a zero morpheme, as in English and Italian. The telic condition discussed in §6.4 is computed at the level of FP and requires Spec,FP to be occupied, in the course of the derivation, by a referential phrase. In Hindi (and Scottish Gaelic) F assigns strong, referential case. In Italian and English F does not have such a property so that BPs/MNs must undergo semantic incorporation. Semantically incorporated phrases cannot leave the VP, eventually explaining the failure to license F and the lack of telicity.[47]

---

47. That semantically incorporated phrases cannot move out of the VP is also shown by the impossibility of focus movement:

(i) *Birra, Mario ha bevuto per tre ore.
Beer, Mario drank for three hours.

and by the failure of topicalisation:

(ii) a. *Birra l'ho bevuta.
Beer it I drank it.

b. Una birra l'ho già bevuta.
A beer it I have already drank.
I've already drank a beer.

As developed so far, the theory is mainly meant to account for such telic sentences as *John ate an apple/ wrote a book* in which the telos/boundary is determined via the contribution of the direct object. It is well known, however, that there are cases in which other constituents control telicity. For instance, the English verb *push* yields telic readings only when an appropriate PP is provided:

(97) a. *John pushed the cart in three hours.
b. John pushed the cart to the store in three hours.

The question is: does the telicity of (97) rely on the same mechanisms as that of (84a)—namely, the presence of F together with the movement of the object to Spec,FP? It seems that the correct answer is no. On the one hand, in fact, the intuition tells us that the telos/boundary is due to the PP; on the other, were the telicity of (97b) determined by F, we would be left without an explanation for why the same category can't make (98) into a telic sentence (in the relevant reading):

(98) *John pushed the cart in three hours.

Moreover, there is evidence coming from Hindi that the explicator *lena*, which played a crucial role in inducing telicity with such verbs as *eat*, *write*, etc., does not play the same role with (the Hindi counterpart of) *push*:[48]

(99) a. Raam-ne tiin ghante *tak/me kaar ghar tak dhakelii.
Ram-erg three hours for/in car home to push-perf.
Ram pushed the car to the house *for/in three hours.
b. Raam-ne tiin ghante *tak/me kaar ghar tak dhakel lii.
Ram-erg three hours for/in car home to push take-perf.
Ram pushed the car to the house *for/in three hours.

The noticeable thing is that according to (99a) and (99b) the presence/absence of telicity is not determined by the presence/absence of the explicator, but simply by the directional PP. Therefore, there is converging crosslinguistic evidence that, in the sentences just discussed, the telos/boundary variable is directly contributed by

48. Thanks to A. Mahajan for the data and the observation.

the PP. More precisely, we take these sentences to host a small clause consisting of a predicate, the directional PP, and a subject (the verb's direct object). Such a small clause provides the telos/boundary—e.g., in the form of the state the car is in because of the event described by the main verb[49]:

(100) a. $\exists ee'$ (push(e) $\wedge$ $\theta_2(e$, car) $\wedge$ to(e') $\wedge$ $\theta_3(e'$, car) $\wedge$ $\theta_4(e'$, store) $\wedge$ rb(e', e))

As observed, in these cases the presence/absence of the explicator is irrelevant for the telicity of (99), the PP being enough. However, when there is no PP the presence/absence of the explicator does again make a difference in Hindi:

(101) a. Raam-ne tiin ghante me kaar dhakel lii.
Ram-erg three hours in car push take-perf
Ram pushed the car in three hours.

b. Raam-ne tiin ghante tak kaar dhakel lii.
Ram-erg three hours for car push take-perf
Ram pushed the car for three hours.

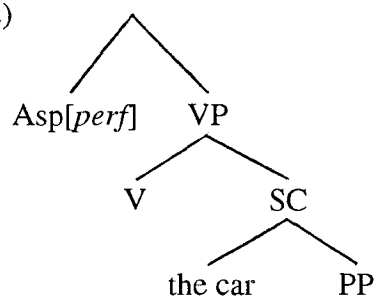
Example (101a), with *lena* is telic, whereas (101b) is atelic. Thus, Hindi terminative sentences featuring activity verbs can be telic either because of the presence of a directional PP, or, if the latter is absent, because of the explicator.

Returning to English and Italian, the relevant sentences are telic only if a directional PP is available, as is well known, cf. the contrast in (97). This suggests that in English and Italian F is not available with activity verbs, so that (97b) has the following structure:

---

49. We already alluded to this possibility in fn.35. To integrate it in our framework an extended predicate rb* could be defined in such a way that rb*(e', e) is true iff either rb(e', e) holds, or e' is such that its left boundary is the right boundary of e.

(102)



We take this to be a property distinguishing English-like languages from Hindi-like ones: verbs such as *push, spingere,* etc.—namely, so called activities—do not co-occur with F.[50] The resulting crosslinguistic contrast probably depends on the lexical/zero status of the morpheme realising F: when F is lexical, as in Hindi, it can co-occur rather freely with all eventive verbs, whereas its distribution is much more restricted in English/Italian. For instance, it might be proposed that in English and Italian the category F is only a device for telicity. Thus it crucially requires a referential DP to land in its Spec. For some reasons, however, such an option is not available to the direct objects of activity verbs. In Hindi, on the other hand, the lexical F can have different functions than that of a teliciser; as pointed out by Singh (1998) and Mahajan (p.c.) when *lena* does not force telic readings it has other meanings: abilitative, etc.

In conclusion, as is well known activities verbs give rise to telic readings in Italian and English, provided that a suitable directional PP is available. If so, the variable for the telos/boundary is directly provided by the PP (in the form of a state). In these cases, we have hypothesised, the F category is absent, reflecting a more general pattern banning the co-occurrence of zero F with activity verbs in these languages. In Hindi, on the other hand, such a restriction is not at play so that the explicator *lena* can co-occur with directional PP. Expectedly, the explicator can also be present in the absence of such a PP, forcing telic readings in cases such as (100a).

---

50. Such a restriction might reflect constraints concerning the thematic relation.

9. Conclusions

In this paper we have proposed a theory of telicity and atelicity according to which these notions are dependent on the terminative/ non-terminative distinction. After discussing a number of proposals available in the literature, we concluded that terminativity and non-terminativity are properties of event particulars and proposed a formal account in terms of the topological properties of eventive domains. With terminativity modelled as a form of topological closure, we then suggested that the telic/ atelic distinction can be understood as corresponding to the two different ways topological closure can be formally obtained: either by directly introducing the relevant operator (atelicity), or by making available an extra eventive variable for the telos/boundary. This led us to a form of the two-events theory for telicity, where the presence/absence of the extra eventive variable is ruled by the presence/absence of a functional category we called FP. Such phenomena as the role of arguments in determining telicity or atelicity have then been shown to be reflexes of morphosyntactic conditions, in particular, of the role direct they play in licensing the F category.

We believe that this theory has far-reaching consequences, some of which have already been discussed. Before concluding, we want to focus on a few more facts. In the first place, the role of F in determining telicity permits to account in a straightforward way for the existence of telic (hence terminative) readings with the imperfect tense:

(103) a. Nel 1983 Mario mangiava una cocomero in cinque secondi.
In 1983 Mario ate(IMPF) a watermelon in five seconds.

b. Nel 1983 Mario raggiungeva la vetta del K2 in due ore.
In 1983 Mario reached(IMPF) the K2 top in two hours.

These sentences show that the form of terminativity attained by means of the expression of a boundary, hence through the F projection, is possible both with perfective and imperfective verbal forms. These data also show that in Italian F can appear without *perf* (this is another difference between Hindi and Italian: in Hindi telic readings always require *perf*, be it directly attached to the verb or to the explicator). Thus we might conclude that the distribution of F is rather free with

respect to that of *perf*, the only major restriction being that its Spec be occupied by a referential phrase in the course of the derivation.[51]

Another interesting application of our approach involves the *paradox of imperfectivity* (Dowty 1979) which can be described in the following terms: some times, the truth of a sentence containing a progressive form 'X was ϕ-ing' entails the truth of the sentence with the perfective form.[52] That is, given the truth of a sentence instantiating the schema (104a), we can truthfully utter a sentence instantiating schema (104b):

(104) a. X was ϕ-ing
b. X ϕ-ed

This is what happens with the following pairs:

(105) a. John was running. John ran.
b. John was eating. John ate.

Not with the following ones, though:

(106) a. John was running home. John ran home.
b. John was eating an apple. John ate an apple.

In general, it is said that activities exhibit the imperfectivity paradox but not accomplishments (and achievements). Notice that the following pairs are licit entailments:

(107) a. John was running home. John ran.
b. John was eating an apple. John ate.

---

51. On the other hand, the unavailability of atelic terminatives with imperfective verbal forms shows that the t predicate of §5 can only be introduced by Asp when the latter has *perf*.

52. Here we use English progressive sentences as examples of imperfective sentences. This is not in contrast with the discussion in §3 concerning the differences between progressive and continuous readings. These difference remaining, progressives do pattern (in the respects which are relevant here) with continuous imperfective sentences.

Within our framework, the paradox of imperfectivity can be approached as follows: the meaning of a progressive sentence refers to both a non-terminated event, and to an intensional abstraction including the terminativity part, cf. (Giorgi and Pianesi 1997). Restricting our attention to the extensional part, and hypothesising that, in the sentences above, the main verb classifies the non-terminated event, e, the valid atelic entailments (105) and (107) follows under the additional hypothesis that the atelic sentences are made true by events which are terminated and part of e. On the other hand, our theory doesn't permit validation of the entailments in (106). Thus, the problem of the imperfective paradox can be recast in terms of the entailments from (108a), to (108b) and (108c):

(108) a. $\exists e(\phi(e)....)$
b. $\exists e(\phi(e) \wedge t(e)....)$
c. $\exists e e' x(\phi(e) \wedge f_\theta(x)=e'....)$

The fact that (108a) does not entail (108c) is now straightforward: there is no way for the latter to be obtained from the former by way of entailment, because of the extra eventive variable in (108c). That is, no imperfective (non-terminative) sentence can entail the corresponding terminative and telic one. The problem with the first pair of entailment is somewhat more intriguing: the passage from (108a) to (108b) is immediately licensed provided that the eventive variable in (108b) is taken to range on parts of the event making true (108a). With this additional stipulation it follows that the truth of a non-terminative sentence entails the truth of the corresponding atelic terminative one. But now take a predicate like *eat an apple*. The theory predicts that (109)a entails (109b), but this doesn't seem to be the case, apparently challenging our reconstruction of the imperfective paradox in a fatal way:

(109) a. $\exists ex(\text{eat}(e) \wedge \theta_2(e, x)...)$
b. $\exists ex(\text{eat}(e) \wedge \theta_2(e, x).\wedge t(e)..)$

However, we think that the counterargument can be resisted. Suppose that the apparent failure of the theory be not due to the failure of the entailment from

(108a) to (108b), but to the fact that the relevant sentences are not available, for some independent reasons. Then our explanation of the imperfectivity paradox could be maintained.

Indeed, English and Italian seem to have only one type of perfective/terminative sentence when predicates like *eat an apple* are involved—namely, *John ate an apple*—and all these sentences are telic. For some reason, these languages cannot deliver terminative atelic sentences in these cases. However, there are languages that can—namely, Hindi—and in this case the entailment from (109a) to (109b) is clearly valid:[53]

(110) a. raam kaar dhakel rahaa thaa
Ram car push prog be-pst
John was pushing the car

b. raam-ne kaar dhakeli thii
Ram-erg car push-perf be-pst
John pushed the car

c. raam-ne kaar dhakel lii thii
Ram-erg car push take-perf be-pst
John pushed the car

---

53. That is, Italian and English exhibit co-occurrence restrictions affecting *perf* that Hindi doesn't. Focussing on accomplishments, there are cases in which *perf* can appear without F, and cases in which F is required:

(i) a. Gianni ha letto un/il libro per un'ora.
Gianni read a/the book for an hour.

b. Gianni ha letto un/il libro in un'ora.
Gianni read a/the book for an hour.

As (i) shows, the very same clause can be modified both by an *in-X-time* adverbial and by a *for-X-time* one. In our framework, this means that the atelic (ia) has only *perf* and lacks F. On the other hand, the telic (ib) has both categories. Other accomplishments, as seen in the text, behave differently:

(ii) a. *Gianni ha mangiato una/la mela per un'ora.
Gianni ate an/the apple for an hour.

b. Gianni ha mangiato una/la mela in un'ora.
Gianni ate an/the apple for an hour.

We do not know what motivates these co-occurrence restrictions, and the lack thereof in Hindi. Possibly, they are related to the zero/lexical status of F. It seems clear, however, that a mere (lexical) semantic explanation cannot work, for it would leave the differences between English/Italian and Hindi unaccounted.

The truth of the Hindi imperfective sentence (110a) entails the truth of the Hindi atelic one (110b), but, expectedly, not that of the telic (110c). So we can safely maintain that (108a) in general does entail (108b). Apparent exceptions are not due to the failure of the entailment from (108a) to (108b), but to the fact that there are languages, e.g., English and Italian, which for independent reasons lack the required atelic terminative sentences. Eventually, both the entailments from non-terminative sentences to the corresponding terminative atelic ones, and the failure of the former to entail their telic counterparts are a matter of logical form, which finds an explanation within our framework.

Finally note that the presence/lack of atelic sentences for accomplishment verbs is the same phenomenon as the one discussed by Singh (1992, 1998) and which she dubbed *the perfectivity paradox*. If so, the theory presented in this paper offers a unified perspective on both the imperfectivity and the perfectivity paradoxes.

Appendix

Mereology

Let P be the part-of relation. Derived notions can be introduced as follows:

(1)	$x{=}y$	$=_{df}$	$\mathsf{P}(x, y) \wedge \mathsf{P}(y, x)$	x is identical with y
(2)	$\mathsf{O}(x, y)$	$=_{df}$	$\exists z\,(\mathsf{P}(z, x) \wedge \mathsf{P}(z, y))$	x overlaps y
(3)	$\mathsf{X}(x, y)$	$=_{df}$	$\mathsf{O}(x, y) \wedge \neg\mathsf{P}(x, y)$	x crosses y
(4)	$\mathsf{PO}(x, y)$	$=_{df}$	$\mathsf{X}(x, y) \wedge \mathsf{X}(y, x)$	x properly overlaps
(5)	$\mathsf{PP}(x, y)$	$=_{df}$	$\mathsf{P}(x, y) \wedge \neg\mathsf{P}(y, x)$	x is a proper part of y
(6)	$\sigma x\phi x$	$=_{df}$	$\iota x\forall y\,(\mathsf{O}(y, x) \leftrightarrow \exists z\,(\phi z \wedge \mathsf{O}(z, y)))$	sum of all ϕers
(7)	$\pi x\phi x$	$=_{df}$	$\sigma x\,\forall z\,(\phi z \rightarrow \mathsf{P}(x, z))$	product of all ϕers
(8)	$x{+}y$	$=_{df}$	$\sigma z\,(\mathsf{P}(z, x) \vee \mathsf{P}(z, y))$	sum of x and y
(9)	$x{\times}y$	$=_{df}$	$\sigma z\,(\mathsf{P}(z, x) \wedge \mathsf{P}(z, y))$	product of x and y
(10)	$\sim y$	$=_{df}$	$\sigma z\,(\mathsf{P}(z, x) \wedge \neg\mathsf{O}(z, y))$	difference of x and y
(11)	$\sim x$	$=_{df}$	$\sigma z\,(\neg\mathsf{O}(z, x))$	complement of x
(12)	U	$=_{df}$	$\sigma z\,(z{=}z)$	universe

Operators and terms defined by means of the fusion operator (6) may be partial; thus, the product of non-overlapping individuals will be undefined, and the universe will have no complement. The operators can be turned into total ones by introducing an appropriate term for the null individual that is part of everything.

The axioms are the following:

(13) $\mathsf{P}(x, y) \leftrightarrow \forall z(\mathsf{O}(z, x) \leftrightarrow \mathsf{O}(z, y))$

(14) $\exists x\phi[x] \rightarrow \exists y\forall z(\mathsf{O}(z, y) \leftrightarrow \exists x(\phi[x] \wedge \mathsf{O}(x, z)))$

The first axioms secures that part-of is an extensional partial ordering. Axiom (14), the 'fusion' axiom, guarantees that every satisfied (non-empty) condition (predicate) picks out an entity consisting of all the ϕ-ers.

Topology I – Version based on the operator of topological closure

The axioms are the followings. Note that, differently than in the text, we follow the common usage for the closure operator and indicate it with c.

(15) a. $\mathsf{P}(e, \mathsf{c}(e))$

b. $\mathsf{c}(\mathsf{c}(e)=\mathsf{c}(e)$

c. $\mathsf{c}(e)+\mathsf{c}(e')=\mathsf{c}(e + e')$

Let B be the relation 'boundary-for', defined in such a way that $\mathsf{B}(x, y)$ is true iff x is a boundary for y. Such a notion differs from the close relation of 'boundary-of', since the latter refers to a maximal boundary. In general, any boundary *for* something is a boundary *of* some part of that something. With these, we can introduce the following definitions:

(16)	b(x)	$=_{df}$	σz(B(z, x))	the (maximal) boundary of x
(17)	c(x)	$=_{df}$	x+b(x)	
(18)	i(x)	$=_{df}$	x-b(x)	interior of x
(19)	Cl(x)	$=_{df}$	x=c(x)	x is closed
(20)	Op(x)	$=_{df}$	x=i(x)	x is open

Topology II – Version based on the notion of boundary

The primitive notion is that of x being a boundary for y, $B(x, y)$. The definitions are as in (16)-(20). The axioms are the followings:

(21) $B(x, y) \rightarrow B(x, \sim y)$

(22) $B(x, y) \wedge B(y, z) \rightarrow B(x, z)$

(23) $P(z, x) \wedge P(z, y) \rightarrow (P(z, b(x \times y)) \leftrightarrow P(z, b(x)+b(y))$

References

Bach. E., (1986). The Algebra of Events. In Linguistics and Philosophy 9: 5-16

Bonomi, A., (1998). Semantical Considerations on the Progressive Reading of the Imperfective. Talk given at the *Conference on the Syntax and Semantics of Tense and Mood Selection*. Bergamo (Italy).

Borer, H., (1994). The Projection of Arguments. In E. Benedicto and J. Runner (eds.) *Functional Projections*, UMOP 17. University of Massachusetts, Amherst.

Chomsky, N., (1995). *The Minimalist Program.* The MIT Press. Cambridge (MA).

Delfitto, D. & P. M. Bertinetto (2000). Word Order and Quantification over Times. In J. Higginbotham, F. Pianesi & A. Varzi (eds.), *Speaking of Events.* OUP, New York.

Depraetere, I. (1995). On the Necessity of Distinguishing between (Un)Boundedness and (A)Telicity. In *Linguistics and Philosophy* 18: 1-19.

De Swarts, H., (1998). Aspect Shift and Coercion. In *Natural Language and Linguistic Theory*, 16: 347-385

Dowty, D. R., (1979). *Word Meaning and Montague Grammar. The Semantics of Verbs and Times in Generative Semantics and Montagues' PTQ.* Reidel, Dordrecht.

Filip, H., (1992). Aspect and Interpretation of Nominal Arguments. In *Papers from the 28th Regional Meeting of the Chicago Linguistic Society*, 139-158. Chicago.

Filip, H. (1998). *Aspect, Eventuality Types and Nominal Reference.* Garland Publishing, New York.

van Geenhoven, V., (1998). *Semantic Incorporation and Indefinite Descriptions.* CUP.

Giorgi, A. and F. Pianesi (1997). *Tense and Aspect: form Semantics to Morphosyntax.* OUP, New York.

Giorgi, A. and F. Pianesi (1998). Present Tense, Perfectivity and the Anchoring Condition. In A. Z. Wyner (ed.) *Proceedings of the 13th Annual Conference of the Israel Association for Theoretical Linguistics (IATL-5)*, 75-95. Akademon, Jerusalem.

Hale, K. and S. J. Keyser (1992). On Argument Structure and the Lexical Expression of Syntactic Relations. In K. Hale and S. J. Keyser (eds.), *The View from Building 20.* The MIT Press. Cambridge (MA).

De Hoop, H. (1992). *Case Configuration and NP Interpretation.* Ph.D. dissertation, Rjiksuniversiteit Groningen.

Higginbotham, J. (1983). The Logic of Perceptual Reports. An Extensional Alternative to Situation Semantics. In *The Journal of Philosophy* 80: 100-127.

Higginbotham, J. (1985). On Semantics. In *Linguistic Inquiry* 16: 547-593.

Higginbotham, J. (1994). Events and Aspect. Ms. Somerville College. Oxford.

Higginbotham, J. (2000). On Evens in Linguistic Semantics. In J. Higginbotham, F. Pianesi & A. Varzi (eds.), *Speaking of Events.* OUP, New York.

Hoekstra, T., and R. Moulder (1990). Unergatives as Copular Verbs: Locational and Existential Predication. TLR 7.1: 1-79.

Kamp, H. and U. Reyle (1993). *From Discourse to Logic.* Kluwer Academic Press, Dordrecht.

Kelley, J. (1955). General Topology. Van Nostrand, Princeton.

Krifka, M., (1989). Nominal Reference, Temporal Constitution and Quantification in Event Domains. In R. Bartsch, J. van Benthem & P. van Emde Boas (eds.), *Semantics and Contextual Expressions.* Foris, Dordrecht.

Krifka, M., (1992). Thematic Relations as Links between Nominal Reference and Temporal Constitution. In I. Sag & A; Szabolcsi (eds.), *Lexical Matters*. CSLI.

Krifka, M., (1998). The Origins of Telicity. In S. Rothstein (ed.), *Events and Grammar*, 197-235. Kluwer Academic Press, Dordrecht.

Landman, F. (1991). *Structures for Semantics*. Kluwer Academic Press, Dordrecht.

Landman, F. (1992). The Progressive. In *Natural Language Semantics* 1: 1-32

Larson, R. (1999). Time and Event. Talk given at the SLA Meeting.

Link, G. (1983). The Logical Analysis of Plurals and Mass Terms. In R. Bäuerle, C. Schwartze and A. von Stechow (eds.), *Meaning, Use and Interpretation of Language*. Walter de Gruyter, Berlin.

Link, G. (1985). Algebraic Semantics for Event Structures. In J. Groenendijk, M. Stokhof and F. Veltman (eds.) *Proceedings of the 6th Amsterdam Colloquium*. ITLI, University of Amsterdam.

Mohanan, (1997). Multidimensionality of Representation: NV Complex Predicates in Hindi. In A. Alsina , J. Bresnan and P. Sells (eds.), *Complex Predicates*. CSLI, Stanford.

Parsons, T. (1989). The Progressive in English. Events, States and Processes. In *Linguistics and Philosophy* 12.

Parsons, T., (1990). *Events in the Semantics of English*. The MIT Press.

Pianesi, F. & A. Varzi (1996). Events, Topology and Temporal Relations. In *The Monist*, 79: 89-116.

Ramchand, G. C., (1997). *Aspect and Predication*. OUP.

Schein, B. (1999). Events and the Semantic Content of Thematic Relations. Ms. University of Soutehrn California. To be published in G. Preyer and G. Peter (eds.), *Logical Form, Language and Ontology: On Contemporary Developments in the Philosophy of Language and Linguistics*.

Simons, P. (1985). *Parts: A Study in Ontology*. Clarendon, Ofxord.

Singh, M. (1991). The Perfective Paradox: How to Ate your Cake and Have It too. In L. Sutton et al. (eds.), *Proceedings of the Berkeley Linguistic Society*, Berkeley.

Singh, M. (1998). On the Semantics of the Perfective Aspect. In *Natural Language Semantics* 6: 171-199.

Smith, C. S. (1991). *The Parameter of Aspect*. Kluwer Academic Publisher. Dordrecht.

Smith, B. and A.C. Varzi (1999). Fiat and Bona Fide Boundaries. In *Philosophy and Phenomenological Research*.

Tenny, C. (1994). *Aspectual roles and the Syntax-Semantics Interface*. Kluwer Academic Press, Dordrecht.

Verkuyl, E. (1993). *A Theory of Aspectuality. The Interaction between Temporal and Atemporal Structure*. CUP.

Verkuyl, E. (2000). Events as Dividuals: Aspectual Composition and Event Semantics. In J. Higginbotham, F. Pianesi & A. Varzi (eds.), *Speaking of Events*. OUP, New York.

Free relatives as defective *wh*-elements: evidence from the North-Western Italian dialects

Nicola Munaro
University of Padova

0. Introduction

The aim of this work is to provide an analysis of the internal structure of a class of *wh*-items attested in some Piedmontese, Valdotain and Ligurian dialects; the proposed hypothesis relies on the assumption that such interrogative elements are cognate with the demonstrative corresponding to English *that* and are therefore analyzable as instances of free relatives inside which the predication of the *wh*-element is missing; it will also be shown how this approach can account for some peculiar distributional properties of these items in main *wh*-questions in the North-Western Italian dialects under discussion.[1]

The article is organized as follows: in section 1 I analyze the data reported in the *Atlante Italo-Svizzero* concerning the distribution of the demonstrative corresponding to *that* and the *wh*-element corresponding to *what* in the North-Western Italian dialects; in section 2 I present some evidence from various Northern Italian varieties showing that the demonstrative *that* can be used as an interrogative item; in section 3 I discuss the use and

---

[1]. An earlier version of this work has appeared as part of the sixth chapter of Munaro (1997) and of the fourth chapter of Munaro (1999). In the elaboration of the ideas presented here I have benefitted from discussions with Paola Benincà, Guglielmo Cinque and Jean Yves Pollock whom I thank here; thanks are also due to the audience of Going Romance 1999 for helpful comments and suggestions.

University of Venice
Working Papers in Linguistics
Vol. 10; n.1; 2000

the interpretation of *quello che* in free relatives and in embedded questions in standard Italian; in section 4 I present some data concerning the use of the demonstrative form *kwe(lu)* in interrogative contexts in some Ligurian dialects; in section 5 I analyze the distribution of the *wh*-item *kwe* in Central-Northern Piedmontese and I propose a plausible account of the internal structure and of the distributional properties of this element in Borgomanerese; the proposed analysis is extended in section 6 to account for the distribution of *quoi* in French main *wh*-questions; section 7 contains an hypothesis about the feature matrix for *wh*-demonstratives and section 8 is a summary of the main theoretical proposals put forth in the paper.

1. The data of the *AIS* (1919-1926)

The data reported in the *Atlante Italo-Svizzero* concerning the demonstrative pronoun *quello* and the interrogative pronoun *cosa* in the North-Western Italian area can be summarized in the following scheme (the relevant maps are VI 1113 and VIII 1589):

(1)	what	that
Ligurian:	*cos(a)/cose/cusi*	*kwelo/kwelu/kölu*
Southern Piedmontese:	*cosa*	*lo/lu*
Central Piedmontese:	*kwe/kwa*	*lon/lun*
Northern-Piedmontese:	*kwe*	*kul(lu)*
Valdotain:	*kye*	*(t)sò/sèn*

From the comparison between the Ligurian, Piedmontese and Valdotain varieties we can draw the two following descriptive generalizations:

(a) only in the Ligurian dialects, which have the forms *kwélo/kwélu/kölu* for the demonstrative *that*, is attested the form *cosa* (or variants of it) for the *wh*-phrase *what*;

(b) the Central-Northern Piedmontese dialects and Valdotain, where the *wh*-phrase *what* is expressed mainly by (variants of) the form *kwe*, lack the form *kwélo/kwélu* of the demonstrative.

It is extremely tempting to interpret this situation as follows: the form *kwe* attested in Piedmontese (and Valdotain) derives from the reduction, through the loss of the second syllable, of the originary demonstrative form *kwe(lo/lu)* which has shifted to the *wh*-use and has been replaced in its demonstrative use by alternative forms.[2] The hypothesis of a shift from demonstrative to interrogative use is empirically supported by the following data from the *AIS* map VI 1113 (*...cosa ne fareste*? = what would you do with it?); the examples reported in (2a-c) are taken from the dialects of Pianezza, Cavaglià and Sauze di Cesana (in Northern, Central and Western Piedmont respectively):

(2) a. *kul* è chi nu fe?
that is that cl-do?
b. *lun* chi na fey?
that that cl-do?
c. *kela* cu nèm farìa?
that that cl-do?

These examples from *AIS* clearly show that in the Piedmontese dialects the *wh*-item *what* was expressed with the demonstrative *that* followed by the complementizer, which provides substantial support for the hypothesis proposed above.[3]

---

[2]. Interestingly, all of these alternative forms are used themselves nowadays as *wh*-items, as will be shown below; this fact provides strong empirical support, from a diachronic perspective, to the hypothesis that there is indeed a tendency of the demonstrative forms to undergoing a semantic shift as a result of which they can be used as interrogative *wh*-items.

[3]. Another piece of evidence in favour of the hypothesis put forth here is the following: according to the *AIS* data, in the whole Piedmontese area there is only one dialect that has a demonstrative which is similar to the one found in Ligurian, namely the one spoken in Ornavasso (near Verbania, in Northern

2. The demonstrative *quello* as *wh*-element in some Northern Italian varieties

The interrogative use of the demonstrative corresponding to Italian *quello* is in fact well attested in some North(-Western) Italian dialects, where the demonstrative can be used both in main and in embedded interrogative contexts as a *wh*-element meaning *what*; in these cases the *wh*-phrase is invariably followed by the complementizer.

2.1. The Valdotain dialects

Some Franco-Provençal Valdotain varieties, for which the *AIS* reports the demonstrative form *sèn*, confirm the existence of a connection between the *wh*-phrase *what* and the demonstrative *that.*

In the Southern Valdotain variety spoken in Chatillon as well as in the Northern Valdotain dialect of Courmayeur we find indeed the form *sen-che* (as exemplified respectively in (3) and (4)):

(3) a. *sen-che* fi-yen?
that-that do-cl?
'what shall we do?'
b. *sen-che* t' a-t feit?
that-that cl have-cl done?
'what have you done?'

(4) a. *sen-che* fièn-nò?
that-that do-cl?
'what shall we do?'
b. dì-me *sen-che* meudgie Marie

Piedmont), where we find the form *kwel*; interestingly, in this variety the form of the interrogative is not *kwe* (as in all the dialects spoken in the surrounding areas) but *ke*.

tell-me that-that eats Mary
'tell me what Mary eats'

Basing on the fact that *sèn* is reported in the *AIS* as demonstrative, the form *sen-che* is straightforwardly analyzable as deriving from an agglutination of the demonstrative to the complementizer.[4]

2.2. The Central-Northern Piedmontese dialects

Empirical evidence for a close relationship between demonstratives and interrogative pronouns is provided by some Central and Northern Piedmontese varieties as well.

Let's consider for example the Provençal variety of Rodoretto di Prali, in the Germanasca valley (west of Turin), where the *wh*-phrase *what* is expressed by the form *soc*:

(5) a. e mi, *soc* minjou-lò?
and I, that eat-cl?

---

4. If the hypothesis of the agglutination of demonstrative and complementizer (that is confirmed by the informants' intuitions) is indeed correct, the fact that in (3a-b) and (4a) the subject pronoun is encliticized onto the inflected verb shows that the alleged process of merging of the two originary morphemes is by now completed, as the presence of the complementizer is usually incompatible with inversion (which is highlighted by the contrast between the examples in (6) and (7) from Torinese in the main text). In the Central Valdotain variety spoken in St Nicolas we find the form *kwe* cooccurring with inversion between inflected verb and subject clitic:

(i) *kwe* fant-i?
that do-cl?
'what do they do?'

For an exhaustive treatment of the syntactic properties of the subject clitic pronouns of the Valdotain Franco-Provençal varieties see Roberts (1993).

'and me, what shall I eat?'

b. *soc* al aourè-lò dit Giorgio?
what cl would-have-cl said George?
'what would George have said?'

c. sabbou pa *soc* (a) fase Jan
know not what (cl) does Jan
'I don't know what Jan does'

Considering the fact that the demonstrative *sò* is attested in the *AIS* in this geographical area, the form *soc* is most likely resulting from the merging with the complementizer (especially in view of the indirect question reported in (5c)).

Similarly, in the dialect of Turin we find, beside normal interrogative structures employing the *wh*-phrase *cos(a)* exemplified in (6), interrogative structures introduced by the demonstrative *lon* followed by the complementizer, as exemplified in (7):

(6) a. *còs* i dev-ne caté?
what cl must-cl buy?
'what do I have to buy?'

b. *còsa* it l'has-to fàit?
what cl it-have-cl done?
'what have you done?'

(7) a. *lon* ch'i devo caté?
that that-cl must buy?
'what do I have to buy?'

b. *lon* ch'it l'has fait?
that that-cl it-have done?
'what have you done?'

Again, *lon* was attested in the *AIS* in Central Piedmontese as demonstrative and is nowadays used as *wh*-item in the same varieties.[5]

2.3. The Northern Lombard dialects

The interrogative use of the demonstrative *quello* in main interrogative sentences is also attested in some Northern Lombard varieties, among which the one spoken in Albosaggia (near Sondrio) in Valtellina, where, exactly as in the structures exemplified in (3)-(5), the interrogative-demonstrative is by now agglutinated with the complementizer *ca* that follows it immediately:

(8) a. *chel-ca* mai?
that-that eat?
'what shall I eat?'
b. *chel-ca* fiv adess?
that-that do now?
'what are you doing now?'

More generalized is the interrogative use of the demonstrative element in indirect questions, as exemplified in (9) again with the dialect of Albosaggia, where the demonstrative *chel* means *what*:[6]

---

[5]. Differently from what happens in (3)-(5), in (7) the demonstrative form does not agglutinate with the complementizer; nonetheless, the contrast between (6) and (7) highlights the existence of a close connection between *wh*-demonstratives and the presence of the complementizer in these North-Western Italian varieties.

[6]. More generally, in all the Eastern Lombard dialects examined the demonstrative *chél* (invariably followed by the complementizer) is employed in embedded questions to express the *wh*-phrase *what*:

(i) a. g' ò dumandà *chél* che l'à fat
him have asked that that cl-has done
'I have asked him what he has done'

(9) a. al so *chel* c'al-fa al Gianni
it know that that-cl-does the John
'I know what John does'
b. dim *chel* c'al-maja la Maria
tell-me that that-cl-eats the Mary
'tell me what Mary eats'

Particularly striking is the pattern found in embedded questions in the dialect spoken in Monno, in the higher part of the Val Camonica, in North-Eastern Lombardy:

(10) a. dim *col* che la maja la Maria
tell-me that that cl-eats the Mary
'tell me what Mary eats'
b. m-domandio *de col* che j-à ciacolà
myself-ask of that that c-have spoken
'I wonder about what they have spoken'

(11) a. 'l so miga *cü* ch' à ciacolà con la Maria
it know not those that have spoken with the Mary
'I don't know who has spoken with Mary'
b. i domandarò *cü* che à telefonà 'stasera
him will-ask those that have phoned tonight

---

b. so mìa *de chél* che i à parlàt
know not of that that cl-have spoken
'I don't know about what they have spoken'

The same fact is attested in the Central Italian variety spoken in Fontana Liri (near Frosinone):

(ii) m dumand *chéll* ch nu siane fatt
myself ask that that not are done
'I wonder what they have not done'

'I will ask him who has phoned tonight'

As exemplified in (10) and (11), in Monnese embedded questions the *wh*-items *what* and *who* are expressed by the forms *col* and *cü* respectively, the singular and plural form of the demonstrative *quello*, which provides further empirical evidence for our hypothesis.[7]

---

[7]. That the *wh*-item *chi* can display plural verbal agreement is shown by the Venetian example reported in (i) where the past participle bears a plural masculine agreement morpheme:

(i) *chi* ze stai?
who is been?
'who is the culprit?'

Moreover, according to Bellotto (1994) in the Friulian dialect of Andreis the *wh*-item *who* can have either singular or plural agreement with a finite lexical verb:

(ii) a. *cui* puartal al pan?
who brings the bread?
b. *cui* puarti al pan?
who bring the bread?
'who brings the bread?'

With the verb *have cui* admits in the present only the plural agreement:

(iii) a. **cui* al fam?
who has hunger?
b. *cui* ani fam?
who have hunger?
'who is hungry?'

3. *Quello che* in standard Italian

In standard Italian the demonstrative *quello* can occur as the element heading a free relative clause, where it refers to a specific entity belonging to a known set:

(12) a. *quello* che hanno comprato non mi piace
that that have bought not me likes
'I don't like the one they bought'
b. preferisco *quello* che hai comprato
prefer that that have bought
'I prefer the one you bought'

However, in the colloquial style *quello* is attested in embedded interrogative contexts with the meaning of *what*:[8]

This particular feature of *chi* might possibly be connected to the fact that in the Northern Italian varieties in general as well as in standard Italian impersonal *si* triggers obligatorily plural masculine agreement on the adjective or on the past participle:

(iv) a. quando che *se* ze contenti/criticai,...
when that se is happy/criticized,...
b. quando *si* è felici/criticati,...
when si is happy/criticized,...
'when one is happy/criticized,...'

Noteworthy in this respect is also the existence, in some North-Eastern Italian dialects, of such alternative forms as *nisun(i)/qualchidun(i)* for *noone/someone*, where the ending *i* might be analyzed as a plural agreement morpheme.

[8]. According to the native speakers' judgement, *quello* in the examples in (13) can, on a rather sloppy stylistic level, be

(13) a. non so *quello* *(che) ha comprato
not know that that has bought
'I don't know what he has bought'
b. ho chiesto loro *quello* *(che) hanno visto
have asked them that that have seen
'I have asked them what they have seen'

In (13) the complementizer can not be omitted, differently from what happens in real embedded questions, where the complementizer is excluded, as one can clearly see from the contrast between (13) and (14):

(14) a. non so *cosa* (*che) ha comprato
not know what (*that) has bought
'I don't know what he has bought'
b. ho chiesto loro *cosa* (*che) hanno visto
have asked them what (*that) have seen
'I have asked them what they have seen'

Moreover, the subordinate clause of (13) can be embedded under predicates selecting DP as well as CP complements (such as *non sapere* or *chiedere*), but not under predicates

---

interpreted as meaning *which one*. Note that if the embedded sentences of (13) contain a subjunctive, the resulting structure is ungrammatical (which is usually not the case in embedded questions):

(i) a. * non so *quello che* abbia comprato
not know that that have bought
'I don't know what he has bought'
b. * ho chiesto loro *quello che* abbiano visto
have asked them that that have seen
'I have asked them what they have seen'

selecting only CP complements (such as *domandarsi*), as shown by the different degree of grammaticality of (13)/(15) and (16):

(15) a. non so la soluzione / il motivo / i dettagli
don't know the solution / the reason / the details
b. ho chiesto la soluzione / il motivo / i dettagli
I have asked the solution / the reason / the details

(16) a. ??mi domando *quello* che ha comprato
myself ask that that has bought
'I wonder what he has bought'
b. ??mi domando *quello* che hanno visto
myself ask that that have seen
'I wonder what they have seen'
c. ??mi domando la soluzione/ il motivo / i dettagli
I ask myself the solution / the reason / the details

These two properties (that is, the impossibility of omitting the complementizer and the restriction concerning a specific class of predicates) lead us to analyze the embedded sentences of (13) as instances of free relative clauses for which I propose an internal structure similar to the one hypothesized by Kayne (1994); I assume that the demonstrative *quello*, raising from the basic argumental position through the specifier of CP, lands in the specifier position of the DP projection, while the complementizer *che* heads the CP selected by D°, as represented in (17):

(17) $[_{DP}$ quello $[_{CP}$ t_{quello} che $[_{IP}$ *pro* hanno comprato t_{quello}]]]

4. The Ligurian dialects

An interesting set of data which strongly suggests that the hypothesis put forth above might indeed be correct comes from some Ligurian dialects spoken in the geographical area around Genoa.

Let's consider first some examples from the dialect of Arenzano, where the *wh*-element *which* in its interrogative use displays a curious behaviour in matrix *wh*-questions: when used adjectivally, that is followed by a nominal head, it is realized in the form *che* (a possibility existing also in standard Italian), while in its pronominal use, that is as bare *wh*-item meaning *which one*, it can be substituted by the demonstrative form *kwelu*; the two possibilities are exemplified in (18) and (19) respectively:

(18) a. *che culéga* u ratéla cun ti?
what colleague cl quarrels with you?
'which colleague quarrels with you?'
b. *che libru* ti e sernüu?
what book cl have chosen?
'which book have you chosen?'

(19) a. *kwelu* l' e c u t a scozìu?
that cl is that cl you has criticized?
'which one criticized you?'
b. *cun kwelu* ti te vedi?
with that cl yourself see?
'which one do you meet?'

Even more interesting, in the light of the *AIS* data presented above, are the following examples from the dialect of Fontanigorda, where the *wh*-element *which* is expressed with the form *kwe* (the very same form that is attested in the Central-Northern Piedmontese dialects with the meaning of *what*); in this variety the form *kwe* can

sometimes have, beside a pronominal use (exemplified in (21)), an adjectival use as well, as an alternative to the prevailing forms *che* and *quale* (as shown in (20)):

(20) a. *kwe lìbbru* ti sèrni?
that book cl choose?
'which book do you choose?'
b. *cun che/quale culèga* ti t e incuntròu?
with what/which colleague cl yourself have met?
'which colleague have you met?'

(21) a. *kwe* ti sèrni?
that cl choose?
'which one do you choose?'
b. *kwe* t e sernüu?
that cl have chosen?
'which one have you chosen?'

Approximately the same pattern is found in the dialect spoken in Arzeno, where *kwe* can function both as adjective and as pronoun:

(22) a. *kwe culega* u l'a ratellòu cun ti?
that colleague cl-has quarrelled with you?
'which colleague has quarrelled with you?'
b. *che/kwe libru* t'insérni?
what/that book cl-choose?
'which book do you choose?'

(23) a. *kwe* u te crìtiche?
that cl-you-criticizes?
'which one criticizes you?'
b. *cun kwe* ti t'incuntri?
with that cl-yourself see?

'which one do you meet?'

As anticipated in section 1 above, I suggest analyzing the form *kwe* of these varieties as resulting from a process of truncation of the form *kwélu*, whose interrogative use is clearly attested in other Ligurian dialects (as witnessed by the examples in (19)).

Another dialect of this geographical area characterized by this peculiar use of the demonstrative is the one spoken in Cicagna; according to Cuneo (1997) in Cicagnino the demonstrative pronoun form *kölu* (corresponding to *quello*) can be used in main questions to express the *wh*-item *which*; as we can see in (24), interrogative *kölu* is followed in main interrogatives by the complementizer *che* and can function as subject, direct object, or prepositional object:

(24) a. *kölu* che t' à telefunò?
that that you has rung up?
'which one has rung you up?'
b. *kölu* che t' è pestò?
that that cl have beaten?
'which one have you beaten?'
c. *de kölu* che ti m' è parlò?
of that that cl me have spoken?
'about which one have you spoken to me?'

This element can sometimes be used with a more neutral semantic characterization corresponding to the one of the *wh*-element *what*; as exemplified in (25b), this kind of usage is particularly frequent in embedded contexts (where *kölu* corresponds to the expression *quello che* of colloquial standard Italian, exemplified in (13) above):

(25) a. *kölu* che l' è che ti m' è dìtu?
that that cl is that cl me have told?
'what is the thing that you have told me?'
b. dime *kölu* che ti gh' è acatò
tell-me that that cl him have bought

'tell me what you have bought him'

As we have just seen, in the Ligurian dialects the acquisition of a *wh*-feature is not associated with a replacement of the demonstrative by a different form; this is presumably due to the fact that in its *wh*-use the demonstrative retaines the referential component of its semantics, which makes it still compatible with the original function.[9]

Nonetheless, the data examined in this section provide further empirical support to the hypothesis that there is indeed a close connection between the *wh*-phrase *kwe* and the demonstrative form *kwelu*.

5. The *wh*-item *kwe* in the Piedmontese dialects

5.1. *Kwe* in Central-Northern Piedmontese

As already pointed out with reference to the *AIS* data, in the Central-Northern Piedmontese dialects *kwe* is attested as *wh*-item with the meaning of *what*; like the other demonstrative forms used interrogatively, it appears generally in sentence initial position and is immediately followed by the complementizer *che*; the examples reported in (26) and (27) are from the dialects of Borgofranco d'Ivrea and Livorno Ferraris:

(26) a. *kwe* che foma adess
that that do now
'what shall we do now?'

---

[9]. Given the absence of the complementizer and the particular semantic value associated with the demonstrative in this case, there is no need to postulate a relative clause structure for the *wh*-item in Ligurian; following Longobardi's (1994) idea that the referentiality of a nominal expression is associated with the DP projection, one might suggest that, internally to the *wh*-phrase, the checking of the *wh*-feature by raising to [spec,DP] provides the constituent with referential features whereby the specific reading becomes available. In section 7 I will present a technically more detailed proposal exploiting this assumption.

b. *kwe* che devo catar?
that that must buy?
'what shall I buy?'

(27) a. *kwe* ch' i-mangg?
that that cl-eat?
'what shall I eat?'
b. *kwe* ch' a-fann?
that that cl-do?
'what are they doing?'

As expected, also in embedded questions the form *kwe* is followed by the complementizer *che* (as shown by the following examples from Livorno Ferraris):

(28) a. i-sai nen *kwe* ch' al faja Gianni
cl-know not what that cl-does John
'I don't know what John does'
b. dimi *kwe* ch' a mangia Maria
tell-me that that cl-eats Mary
'tell me what Mary eats'

As shown by the examples examined in this section, in Central-Northern Piedmontese the *wh*-item *kwe* is associated with a less restricted potential reference with respect to what happens in the Ligurian varieties.[10]

---

[10]. The form *kwe* is attested not only in Central-Northern Piedmontese, but also in the high Val Grana and in the high Val d'Esturo, in South-Western Piedmont:

(i) a. *kwe* péi far?
that can do?
'what can I do?'

5.2. *Kwe* in Borgomanerese

As observed by Tortora (1997), in the North-Western Piedmontese variety spoken in Borgomanero *wh*-items in general can optionally be followed by the complementizer both in matrix and in embedded questions:

---

b. *kwe* fasèn?
that do?
'what shall we do?'

Parry (1997) suggests analyzing the form *kwe* attested in these dialects as the residue of a cleft structure; basing on the existence of the form *ko* in the variety of Rueglio, she proposes to analyze the form *kwe* of the dialect of Oglianico (exemplified in (ii)) as deriving from the expression *ko è che*, where *ko* merges with the copular verb *è*:

(ii) *kwe* ch' a fan?
what that cl-do?
'what do they do?'

This hypothesis is supported, according to her, by the fact that in some varieties (such as the ones of Corio or Oglianico) the subject clitic pronoun *l(o)* encliticizes to the *wh*-item producing the form *kwe-l(o)*, as exemplified in (iii) again with the dialect of Oglianico:

(iii) *kwel* che pos faje?
what that can do?
'what can I do?'

Parry proposes therefore that the final stressed vowel of *kwe* derives from the copula of an inversion structure, pointing out that the agglutination of the pronoun would be unexplainable otherwise.
The analysis proposed here accounts differently for the existence of such forms.

(29) a. *chi* (*ca*)l venja stasera?
who (that)cl comes tonight?
'who is coming tonight?'
b. *cus* (*ch*)i möngiu?
what (that)cl eat?
'what do they eat?'
c. *quöndu* (*c*)l à parlà?
when (that)cl-has spoken?
'when has he spoken?'

(30) a. i so mija *chi* (*c*)l à mangià la torta
cl-know not who (that)cl-has eaten the cake
'I don't know who ate the cake'
b. i so mija *cus* (*ca*) tal möngi
cl-know not what (that) cl-eat
'I don't know what you eat'

The only exceptional *wh*-item in this respect is *kwe*;[11] Borgomanerese is the only dialect in which *kwe* is never followed by the complementizer either in matrix or in embedded questions:

---

[11]. The form *kwa* was attested beside *cus* in Borgomanerese at the beginning of the XX century, when some residual cases of inversion between inflected verb and subject clitic pronoun appeared in crystallized expressions like the following (reported in Pagani (1919)):

(i) a. *kwa* dis-tu?
what say-cl?
b. *kwa* zi-vu?
what say-cl?
'what do you think about that?'

(31) a. i so mija *kwe* (**ca*) tal möngi
cl-know not that (*that) cl-eat
'I don't know what you eat'
b. me i ciami-mi *kwe* (**ca*) tal fè
I cl-ask-myself that (*that) cl-do
'I wonder what you do'

This fact can be interpreted as evidence that, unlike what happens in other dialects (and in standard Italian, as represented in (17)), in this case the landing site of the *wh*-element inside the embedded clause is not the specifier position of DP, the highest functional projection, but the specifier of a lower CP projection, which prevents, under some version of the *doubly-filled Comp filter,* the overt realization of the complementizer in the corresponding head:[12]

The *wh*-item *kwa* that we find in the examples in (i) has disappeared nowadays from the Piedmontese dialects but is attested in the *AIS* in some Central-Eastern Piedmontese varieties; if the hypothesis about the reduction of the demonstrative *kwelu* to *kwe* is correct, it looks in principle possible to extend the analysis to derive *kwa* from the interrogative *kwal(a),* which is occasionally attested in the *AIS* (for example in the Northern Piedmontese variety of Antronapiana in the Antrona valley).

[12]. That the option of omitting the complementizer in free relatives can be in some cases connected with the presence of the demonstrative *quello* is independently shown by *complementizer deletion* phenomena attested in 15th/16th century Italian varieties. The example in (ia) is from 15th century Tuscan (analyzed by Scorretti (1981) and Wanner (1981)) while the one in (ib) is an example of 16th century Venetian (from Benincà (1995)):

(i) a. nulla di *quello* __ mi fia possibile
nothing of that __ me be possible
'nothing of what may be possible for me'

b. in *quelo* __ desidré
in that __ wish
'in what you wish'

The omission of the complementizer is attested in modern standard Italian in free relatives introduced by *quanto*, which are semantically equivalent to the corresponding structure introduced by *quello che* analyzed in section 3 above:

(ii) a. *quello che* hai fatto non mi stupisce
that that have done not me astonishes
'what you have done doesn't astonish me'
b. *quanto* ___ hai fatto non mi stupisce
how much ___ have done not me astonishes
'what you have done doesn't astonish me'

The same holds when the free relatives exemplified in (ii) occur in comparatives:

iii) a. hanno fatto più di *quello che* credevo
have done more than that that thought
b. hanno fatto più (di *quanto* __ credevo
have done more than how much __ thought
'they have done more than I thought'

I assume that *quanto* in structures like (iib) and (iiib) heads a *Q(uantifier)P* projection which, differently from *quello* in (iia) and (iiia), does not raise up to the [spec,DP] position of the relative clause, but occupies the specifier of a lower CP projection (which inhibits the realization of the complementizer *che*); the structure I propose to assign to the free relatives of the examples in (ii) are the following:

(iv) a. $[_{DP}$ *quello* D° $[_{CP}$ che $[_{IP}$ *pro* hai $[_{VP}$ fatto $t_{quello}]]]]$
b. $[_{DP}$ $[_{CP}$ $[_{QP}$ $[_{Q°}$ *quanto*$]]][_{IP}$ *pro* hai $[_{VP}$ fatto $t_{quanto}]]]]$

(32) $[_{CP}\ [_{IP}$ i so mija $[_{DP}\ [_{CP}$ *kwe* $[_{IP}$ tal möngi $t_{kwe}]]]]]$

The *wh*-item *kwe* is characterized in Borgomanerese by another peculiarity, namely the fact that, differently from the *wh*-item *cus*, it appears obligatorily *in situ* in a matrix question (as shown by the contrast between (33) and (34)):

(33) a. *cus* l'è ca tal serchi?
what cl-is that cl-seek?
'what are you seeking?'
b. *cus* t'è mangià?
what cl-have eaten?
'what have you eaten?'
c. *da cus* i ön parlà?
of what cl-have spoken?
'what have they spoken about?'

(34) a. tal serchi *kwe*?
cl-seek that?
'what are you seeking?'
b. t'è mangià *kwe*?
cl-have eaten that?
'what have you eaten?'
c. l'e *kwe*?
cl-is that?
'what is it?'

I adopt here the analysis of *wh-in situ* suggested by Pollock-Munaro-Poletto (1999) (which exploits in turn Rizzi's (1998) *split-CP* approach and Kayne & Pollock's (1998)

The data presented here provide further evidence that free relative clauses, and in particular those containing the demonstrative *quello*, represent a context in which the omission of the complementizer is made possible by peculiar structural conditions.

remnant IP-raising analysis): according to the authors, in a dialect like Bellunese (a North-Eastern Italian variety) the raising of the *wh*-item to the specifier position of *OpP* is followed by remnant IP raising to the specifier of *FocusP* and by adjunction of the inflected verb to the interrogative subject clitic generated in the head *Int-Force°*; a main *wh*-question like (35a) is assigned the structural representation in (35b):

(35) a. à-lo fat *che*?
has-cl done what?
'what has he done?'

b. $[_{IntForceP}\,[_{IntForce°}$ à-lo$][_{FocusP}[_{IP}\,t_{à}$ fat $t_{che}][_{Focus°}][_{OpP}$[che]$[_{Op°}]$ t_{IP}]]]

I propose therefore to analyze Borgomanerese interrogative structures such as the ones exemplified in (34) as represented in (36):

(36) $[_{Int\text{-}ForceP}\,[_{XP}\,[_{IP}$ tal möngi $t_{kwe}]$ $X°\,[_{OpP}\,[_{DP}\,[_{CP}$ kwe $[_{IP}$]]] $_{Op°}$ t_{IP}]]]

After *wh*-movement of the relative clause containing *kwe* to [spec,CP], *remnant IP* raises to the specifier of a higher projection of the CP-layer, thereby identifying from this c-commanding position the IP internal to the relative clause.[13]

---

[13]. The hypothesis that the interrogative use of a demonstrative form is indeed connected to the sentence internal occurrence of the same form in main interrogatives (hopefully in the way suggested in the text) gains empirical support from Bellunese itself, where the demonstrative *kwel*, differently from the ordinary *wh*-item *kwal*, can appear in a main question only in sentence internal position, as shown by the contrast between (ia) and (ib):

(i) a. à-tu ciot *kwal/kwel*?
have-cl taken which/that?
'which one have you taken?'

This analysis of *wh*-demonstratives as 'masked' free relatives crucially relies on the possibility of establishing a structural configuration which permits to satisfy one

---

b. *kwal/*kwel* à-tu ciot?
which/that have-cl taken?
'which one have you taken?'

Similarly, in Cicagnino *kölu* can appear not only in initial position followed by the complementizer, as we have seen in section 4 above, but also in sentence internal position:

(ii) a. *kölu* che ti vo?
that that cl-want?
'which one do you want?'
b. ti vo *kölu*?
cl-want that?
'which one do you want?'

If the analysis proposed in the text for Borgomanerese *kwe* is extendable to Monnese *kwe* then the sentence internal occurrence of the latter in main questions can be amenable to the same account:

(iii) a. ch' à-l fat *kwe*?
what has-cl done that?
'what has he done?'
b. ch' è-t cumprà *kwe*?
what have-cl bought that?
'what have you bought?'

The hypothesis that *kwe* in Monnese derives from the reduction of a demonstrative is supported by the fact that the demonstrative form reported in the *AIS* for this geographical area is *kwèl(a)*; as we have said in section 2.3 above, the form of the demonstrative is no more the same in Monnese nowadays, which is expected under the assumption that *kwèl* has been reduced to *kwè*.

requirement: the relative clause internal predication of the *wh*-element (i.e. the head of the relative clause itself), which amounts to a proper identification of its IP; I propose that this requirement can be satisfied through remnant IP-raising to a functional specifier position of the CP-layer.

In main *wh*-questions in which the demonstrative appears in sentence initial position followed by the complementizer (such as the ones analyzed in section 2 above), the *wh*-constituent (that is, the relative clause containing demonstrative and complementizer) raises to a specifier of the CP-layer (possibly the specifier of *OpP*) and eventually *remnant IP*-raising to a higher position makes the identification of the IP constituent internal to the relative clause possible.[14]

---

[14]. The surface order is plausibly determined by further raising of the relative clause to the specifier of a higher CP-projection; such a movement operation is possibly triggered by some linearization condition banning final complementizers in Romance. Note that the hypothesis that demonstrative and complementizer in an example like (i) form a constituent behaving like any ordinary *wh*-phrase, hence moving to some operator position of the CP-layer, accounts for the fact that in Torinese the *wh*-item *lon* is the only one which admits the cooccurrence of complementizer and subject clitic inversion:

(i) *lon* c'a l'a-lo fat?
that that cl-has-cl done?
'what has he done?'

An alternative possibility consists in treating the kind of *wh*-questions discussed in sections 2.1-2.3 as embedded free relatives lacking the main predicate and reanalyzed as main questions.
A natural assumption is that the structure attested with *wh*-demostratives is then extended to any *wh*-question, as shown by the fact that in Central-Northern Piedmontese *wh*-items are (or can be) followed by the complementizer.

6. French *quoi*

I suggest here an extension of the analysis proposed for examples like (34) to account for the sentence internal occurrence of French *quoi*, whose distributional properties strikingly resemble the ones of *kwe* in Borgomanerese.

As exemplified in (37), in French main *wh*-questions *quoi* must appear in sentence internal position and can not occupy the sentence initial position:[15]

(37) a. tu as fait *quoi*?
you have done what?
'what have you done?'
b. **quoi* tu as fait?
what you have done?
'what have you done?'

According to Obenauer (1994) *quoi* is characterized by a higher degree of specificity than *que*; this fact is formalized in the assumption that *quoi* is endowed with a inherent feature [+*determined*].

---

[15]. It is noteworthy that when inversion between the subject clitic pronoun and the inflected verb obtains, *quoi* can not appear either in sentence initial or in sentence internal position:

(i) a. **quoi* as-tu fait?
what have-you done?
b. *as-tu fait *quoi*?
have-you done what?
'what have you done?'

Interestingly, *quoi*'s incompatibility with subject clitic inversion is correctly predicted by the present hypothesis in conjunction with Pollock et alii's (1999) analysis of the inversion between finite verb and subject clitic in French.

We can reasonably assume that this intrinsic characterization of *quoi* requires a proper form of identification; hence, the raising of *quoi* to the specifier position of the relevant projection of the CP layer is followed by (obligatory) *remnant IP*-raising to a higher functional specifier of the left periphery, as represented in (38):

(38) $[_{\text{Int-ForceP}}\,[_{\text{XP}}[_{\text{IP}}$ tu as fait $t_{\text{quoi}}]\ _{\text{X}^\circ}\ [_{\text{OpP}}[_{\text{QP}}$ *quoi e*$]\ _{\text{Op}^\circ}\ t_{\text{IP}}]]]$

The hypothesis that the distribution of French *quoi* and Borgomanerese *kwe* can be amenable to the same account is strengthened by the fact that both these *wh*-items can optionally appear either in initial position or *in situ* when they are inside a prepositional phrase:

(39) a. *de quoi* a-t-il parlé?
of what has-cl spoken?
'what has he spoken about?'
b. il-a parlé *de quoi*?
cl-has spoken of what?
'what has he spoken about?'

(40) a. *da kwe* i ön parlà?
of that cl-have spoken?
'what have they spoken about?'
b. i ön parlà *da kwe*?
cl-have spoken of that?
'what have they spoken about?'

The fact that the two languages under discussion display optionality when the *wh*-item is part of a prepositional phrase can be interpreted as an argument in favour of the

hypothesis that the distribution of the two *wh*-elements must be traced back to the same underlying structural conditions.[16]

7. A feature matrix for *wh*-demonstratives

In this section I propose a possible characterization, in terms of inherent semantic features, for demonstratives when they are used as *wh*-elements in interrogative contexts.

On the basis of evidence taken mainly from Spanish, Brugè (1996) analyzes demonstratives as elements characterized by the two following features: [+referential] / [+deictic].

I propose that the acquisition of the *wh*-feature implies at least the loss of the feature [+deictic], as shown by the impossibility for the *wh*-demonstrative *kwel* to cooccur with the deictic particle *là* in Bellunese; indeed (41a), where *kwel* is interpreted as *which one*, can only be a *wh*-question (in which remnant IP-raising has obviously applied), while (41b), where *kwel* is interpreted as a real demonstrative, is only a *yes/no* question:

(41) a. à-tu ciot *kwel* (*là)?
have-cl taken that (*there)?
'which one have you taken?'
b. à-tu ciot *kwel* *(là)?
have-cl taken that *(there)?
'have you taken that one?'

---

[16]. At the time being, I am not in a position to propose a plausible explanation for the optionality exemplified in (39) and (40). A very tentative hypothesis is that the presence of the preposition is a sufficient condition in order to provide the (defective) *wh*-item with inherent semantic content, hence to achieve some form of identification of the empty category inside it, thereby dispensing with remnant-IP raising in (39a) and (40a).

Since both in Bellunese and in the Ligurian dialects analyzed in section 4 the *wh*-demonstrative is interpreted as meaning *which*, that is, it requires the identification of a specific member out of a well defined set, in these varieties the feature [+referential] must be maintained beside the new *wh*-feature.

Referring to Vanelli (1992)'s analysis according to which the vowel of the definite article in Italian can be considered epenthetic, I suggest assigning to the Ligurian *wh*-demonstrative forms *kwelu/kölu* the following internal structure:[17]

(42) [DP *kwe/kö* [D° *lu*] $t_{kwe/kö}$]

Under this analysis, we can assume that in the Ligurian varieties the feature [+referential] is checked in overt syntax by raising of the *wh*-morpheme to [spec,DP], thereby providing the DP with sufficient referential content and dispensing with remnant-IP raising; this accounts for the fact that *wh*-demonstratives in Ligurian always appear in sentence initial position.[18]

In the Piedmontese (including Borgomanerese), Valdotain and Lombard dialects the *wh*-demonstrative is interpreted as *what*, hence it does not require the identification of a specific member out of a set known both to the speaker and to the hearer; we can reasonably assume that in this case also the feature [+referential] has been lost and only the acquired *wh*-feature is retained.

---

[17]. I am borrowing this structural analysis of the demonstrative *kwe(lu)* from Pollock et alii (1999), where it was introduced to account for the fact that the *wh*-item *kwal* can optionally appear either in sentence initial position or in sentence internal position in main *wh*-questions in Bellunese (as shown by the examples in (i) in footnote 13 above). Note that, as *wh*-demonstrative, *kwel* can not appear in sentence initial position, which means, under the present analysis, that remnant-IP raising applies obligatorily in this case.

[18]. Alternatively, one might assume that, after remnant-IP raising has applied to target the specifier of *FocusP*, *kwe(lu)* raises in turn past it to check the feature associated with the higher projection *Int-ForceP*; this approach would however leave open the question as to how the same derivation is not available in Borgomanerese.

8. Summary

In this paper I have proposed that the *wh*-item *kwe* attested in some North-Western Italian dialects is analyzable as deriving diachronically from the truncation of the demonstrative *kwelu*. This assumption has been empirically supported by the presentation of extensive synchronic evidence from various Northern Italian dialects and from standard Italian showing that the demonstrative corresponding to English *that* can function as *wh*-element in main or embedded interrogatives and in free relatives. In order to account for its sentence internal occurrence in main *wh*-questions in one of the examined varieties, I have argued that *kwe* can be viewed as an instance of free relative clause lacking the predication of the *wh*-item and that such inherent defectiveness can be made up for through the application of remnant-IP raising to a functional specifier of the CP layer higher than the one hosting *kwe*; this analysis has been carried over to account for the distributional properties of French *quoi* as well. Finally, I have proposed that, depending on the semantic value of the item involved, the acquisition of a *wh*-feature in demonstratives implies in some dialects the loss of the feature [+referential] while in others both the feature [+referential] and the feature [+deictic] are necessarily lost.

References

AIS - Sprach- und Sachatlas Italiens und der Südschweiz, **K. Jaberg and J.Jud, Zofingen, Ringier & C., 1928-1940**

ASIS - Atlante Sintattico dell'Italia Settentrionale, **Centro di Studio per la Dialettologia Italiana "O. Parlangèli", CNR – Università di Padova**

Bellotto, S. (1994) *Indagine sintattica sui dialetti della Valcellina con particolare riferimento ai clitici soggetto*, MAThesis, University of Venice

Benincà, P. (1995) "I dati dell'ASIS e la sintassi diacronica", in E. Banfi, G. Bonfadini, P. Cordin e M. Iliescu (eds.) *Italia Settentrionale: crocevia di idiomi romanzi. Atti del convegno internazionale di studi – Trento, 21-23 ottobre 1993*, Max Niemeyer Verlag, Tübingen, pp.133-143

Brugè, L. (1996) "Demonstrative Movement in Spanish: a Comparative Approach", *University of Venice Working Papers in Linguistics* VI.1:1-53

Cuneo, M. (1997) "Il sintagma interrogativo *kölu...ke* nel dialetto di Cicagna", *Quaderni di lavoro dell'ASIS* 1, CNR - Padova

Kayne, R.S. (1994) *The Antisymmetry of Syntax* (*Linguistic Inquiry Monograph* 25), MIT Press, Cambridge, Mass.

Kayne, R.S., J.Y. Pollock (1998) "New Thoughts on Stylistic Inversion", manuscript, New York University – UPR 9075 CNRS Lyon

Longobardi, G. (1994) "Reference and Proper Names: a Theory of N-Movement in Syntax and Logical Form", *Linguistic Inquiry* 25.4:609-665

Munaro, N. (1997) *Proprietà strutturali e distribuzionali dei sintagmi interrogativi in alcuni dialetti italiani settentrionali*, PhdThesis – University of Padova, published as Sintagmi interrogativi nei dialetti italiani settentrionali, RGG Monographs, Unipress, Padova (1999)

Obenauer, H.-G. (1994) *Aspects de la syntaxe A-barre. Effets d'intervention et mouvements des quantifieurs*, thèse d'Etàt, University of Paris VIII

Pagani, G. (1919) "Il dialetto di Borgomanero", from *Rendiconti dell'Istituto Lombardo*, second series, volume LI, pp. 919-949

Parry, M.M. (1997) "It capissesto quaicosa ti? La costruzione interrogativa in piemontese" in *At dël XIII Rëscontr antërnassional dë studi an sla lenga e literatura piemontèisa*, Turin, 11-12 May 1996

Pollock, J.Y., N. Munaro, C. Poletto (1999) "Eppur si muove! – On comparing French, Portuguese and Bellunese wh-movement", manuscript, CNRS-Lyon – University of Padova

Rizzi, L. (1998) "The fine structure of the left periphery", in P. Benincà & G. Salvi (eds.) *Romance Syntax*, Budapest Studies in Romance Linguistics, pp.112-158

Roberts, I. (1993) "The Nature of Subject Clitics in Franco-Provençal Valdotain", in A. Belletti (ed.) *Syntactic Theory and the Dialects of Italy*, Rosenberg & Sellier, Turin, pp. 319-353

Scorretti, M. (1981) "Complementizer ellipsis in 15th century Italian", *Journal of Italian Linguistics* 6.1:35-47

Tortora, C. (1997) "I pronomi interrogativi in borgomanerese", *Quaderni di lavoro dell'ASIS* 1, CNR - Padova

Vanelli, L. (1992) "Da lo a il: la storia dell'articolo definito maschile singolare in italiano e nei dialetti settentrionali", *Rivista italiana di dialettologia* 16:29-66

Wanner, D. (1981) "Surface complementizer deletion", *Journal of Italian Linguistics* 6.1:48-83

«Rhetorical» *wh*-phrases in the left periphery of the sentence

Hans-Georg Obenauer and Cecilia Poletto
CNRS, UPRESA 7023 - University of Padova

1. Introduction

In this paper we will examine the syntax of rhetorical *wh*-questions in Italian and French and argue in favor of an analysis which reduces the distributional peculiarities of RQs to the fact that the *wh*-item (and the inflected verb) in RQs raises higher than it does in normal («true») questions.[1]

Let us begin by recalling some properties of rhetorical questions (from now on RQs) and stating our formal criteria for the rhetorical status of questions. Like «normal» questions, rhetorical questions come in two major types, *wh*-questions and Yes-No questions. In what follows, we will be concerned exclusively with *wh*-questions.

In the first place, rhetorical questions are determined by their meaning. An interrogative structure like (1a) or (1b):

(1) a. Who can you trust, nowadays?
b. What difference does it make?
c. Why relive it?

---

1. This paper has benefited from discussions with Manuela Ambar, Jean-Claude Anscombre, Paola Benincà, Cassian Braconnier, Guglielmo Cinque, Richard Kayne and Jean-Yves Pollock; we wish to thank them all. The usual disclaimers apply. For administrative reasons in Italy, Hans-Georg Obenauer takes responsibility for sections 1, 6, 7, 8, and Cecilia Poletto for sections 2, 3, 4, 5.

The work presented here was carried out as part of the Conjoined research project No. 5337 CNRS-CNR.

University of Venice
Working Papers in Linguistics
Vol. 10, n.1; 2000

is a rhetorical question, in the sense that we will use here, if instead of the normal interrogative reading expressed in (2) it is taken to convey the rhetorical interpretation informally expressed in (3):

(2) wh x, x a human [you can trust x, nowadays]

(3) no x, x a human [you can trust x, nowadays]

(in certain cases, like in (1c), only a rhetorical interpretation is possible).[2] In other words, a «rhetorical question is interrogative in structure, but has the force of a strong assertion. It generally does not expect an answer» (Quirk et alii (1985)).

So far, rhetorical questions might not differ, syntactically / structurally or otherwise, from «true» questions requesting information in the form of values of the

---

2. Our notion of RQ is more restrictive than the notion defined in terms of «absence of a genuine request for information», which can be considered as definition of rhetorical questions in a larger sense. Indeed, the latter notion covers questions with an interpretation of the type characterized in (3), but also, for example, a question like (i) in German, introduced by adverbial *was*, with a meaning close to 'why':

(i) Was lachst du denn so?
what laugh you 'denn' thus
'Why are you laughing like this?'

(i) can express surprise without having the force of a negative assertion, i.e. it does not necessarily deny that there might be a reason (acceptable for the speaker) for laughing. With this interpretation, (i) does not ask for an answer, and fits the larger definition of RQs, but not the more restrictive one indicated in (3). Other interpretations of (i) are possible. For a discussion of this type of sentence in French, German, and the Italian Northern Veneto dialect Alpagotto, see Munaro and Obenauer (1999).

variable bound by the interrogative operator. However, it has often been pointed out in the literature that RQs do have particular properties.[3]

One of these properties is the fact that negative polarity items (NPIs) are more generally licensed in RQs than in true questions. Examples of such licensing are given in (4) (containing a so-called weak polarity item, possible in contexts which are insufficient to license stronger types of NPIs) and (5) (containing a strong NPI):

(4) Who has *any* money to spare these days?

(5) Who (the hell) *gives a red cent* about your problems?
(= (13a) of Lee 1996)

The precise conditions under which licensing takes place are a subject of debate; they depend on structural properties of the licenser (the *wh*-phrase) and the type of NPI, even beyond the weak-strong distinction illustrated in (4) vs. (5).[4] In principle, then, the occurrence of NPIs in questions can be used as a formal diagnostic for their RQ status, subject to the adequate choice of the type of NPI. We will come back to this question below.

Besides NPI licensing, there are also purely syntactic properties that distinguish rhetorical *wh*-questions from genuine questions. Obenauer (1994, chap. III) observed that rhetorical *wh*-questions are subject crosslinguistically to stronger conditions on *wh*-pied-piping; it is also argued there that despite superficial evidence to the contrary, the *wh*-phrases of rhetorical *wh*-questions cannot occur «in situ», but must move to initial position at S-structure (i.e. before Spell-Out in present terms). These two phenomena, Obenauer (1994) argues, are in fact surface manifestations of a unique property (analyzed there as following from a stronger form of Spec-Head Agreement in Spec, CP). We will not deal with the restrictions on pied-piping here, but focus on the landing site of the *wh*-phrase and the relevant structure of the larger CP-domain.

---

3. One of the properties distinguishing TQs and RQs is intonation. In a gross approximation, RQ intonation is obligatorily falling; this is not the case for TQs. We will not be concerned with intonation in this paper.

4. For recent discussion, see the divergent views of Han and Siegel (1997) and Lee (1996).

Turning back to the question of NPIs as diagnostics of the rhetorical status of *wh*-questions, we note that this test cannot be applied in Italian, as the negative elements corresponding to English NPIs - *niente*, *nessuno* and other *n*-words - are not licensed in the same environment (presumably because they differ in internal constitution from *any NP*). The possibility of NPI licensing in Italian *wh*-interrogative sentences is extremely restricted: the only grammatical case is the one in which the *wh*-item corresponds to the subject and the NPI to the direct object, the NPI furthermore being limited to the negative element *niente* , as shown in (6a):

(6) a Chi ha detto niente?
who has said anything?

b *Chi ha visto nessuno?
who has seen anybody

c *Cosa ha visto nessuno?
what has seen anybody

d *Chi ha pensato a niente?
who has thought of anything

If the *wh*-item does not correspond to the subject (6c) or if the NPI is not the direct object (6d) and does not correspond to the NPI *niente* 'anything' (6b), the sentence is ungrammatical.

NPI licensing, then, does not identify the class of rhetorical questions in Italian. In order to delimit our field of inquiry, we will adopt a morphosyntactic criterion that singles out the rhetorical type of interpretation we are interested in in standard Italian, namely the presence in the sentence of the adverbial element *mai*, roughly corresponding to English 'ever/never', and we will examine its behavior when it is combined with a +realis or -realis verbal form and with the modal verb, *potere* 'can':

(7) a Cosa mai avrei potuto dire?
what ever have+conditional could say

b Quando mai ti ha dato soldi, lui? [5]
when ever to-you has given money, he

We will thus utilize, for Italian, a definition of *wh*-RQs as those *wh*-questions that contain the morpheme *mai*, and we will contrast the behavior of *wh*-items in this type of question with respect to what we will call «true questions» (from now on TQs). We will not provide any formal test for isolating TQs from other interrogative types, and will simply consider TQs as genuine requests for information which are opposed to echo questions. Therefore, we will include in the definition of TQs interrogative sentences which are out of context, but also interrogative sentences which presuppose a given context. The main concern of this work is not to provide a typology of question types but only the structure of RQs as defined above, which will be opposed to all other types of interrogative clauses. As for French, we will show that the NPI diagnostic can be used for the identification of RQs.

Our central claim, namely that in RQs the *wh*-item raises higher than in other types of questions, will be shown to derive:

a) the syntax of subject inversion in Italian;
b) the ordering of the *wh*-phrases with respect to left dislocated items and hanging topics;
c) the exclusion of sentence internal «rhetorical» *wh*-phrases in French.

The paper is organized as follows. Sections 2-4 deal with Italian and sections 5-7 with French. In section 2 we discuss subject inversion and left dislocations in RQs and TQs, section 3 describes some differences between +realis and -realis verbal forms and section 4 considers the positions of *mai* inside the clause. Section 5 introduces RQs in French, section 6 argues that genuine RQs must have sentence initial *wh*-phrases, and section 7 brings to light a parallelism between RQs and negation. Section 8 concludes the discussion.

---

5. Many speakers find this type of clauses marginal; they degrade when the *wh*-item *cosa* 'what' is used in combination with a verb like *fare* 'to do':

(i) Cosa mai ha fatto?
What ever has (he) done?

2. *Wh*-phrases are located higher in RQs than in true questions

In this section we will provide two arguments based on standard Italian data which show that in RQs the *wh*-item and the inflected verb move higher than they do in TQs as defined above.

2.1. RQs and subject inversion in Italian

The first test regards the subject position in TQs and RQs. It is well known (cf. Rizzi (1991) among others) that in standard Italian no subject can occur in the SpecT (or SpecAgrS) position as shown in (8) in main interrogative clauses:

(8) a *Cosa ha Gianni fatto?
what has John done
b *Cosa Gianni ha fatto?
what John has done

(8a) shows that inversion of the «Germanic» type is not allowed,[6] nor is a subject immediately after the *wh*-item (cf. (8b)). This is a well known fact which has received much attention in the literature (cf. among others Rizzi (1991)).

The only possible positions for a subject DP are shown in (9):

(9) a Gianni, cosa ha fatto?
John, what has done
b Cosa ha fatto, Gianni?
what has done, John

---

6. This is a general phenomenon in the Romance domain, in which only the Romance varieties that are still V2 allow sequences like (2a).

A subject can only occur at the left edge of the whole interrogative structure - cf. (10) -, or at its right edge (see Poletto and Pollock (1999)) for a detailed analysis of the pattern).

(10) $[_{SubjectP}$ DP $[_{FocusP}$ true WH ...]]

Rizzi (1991) explains the ungrammaticality of (8a,b) as a consequence of the absence of nominative Case. Rizzi's hypothesis is that nominative cannot be assigned to the subject because it is not in a Spec-head relation with the inflected verb which has moved higher than the AgrS° position - that is, to C° -, destroying the Spec-head relation. If this hypothesis were correct, Italian should lack the phenomenon of «Germanic inversion» altogether. We will see directly (cf. (11)) that this is not the case; for this reason we will adopt an alternative analysis for the ungrammaticality of (8a,b), namely the one proposed in Poletto (in press). If we assume that the preverbal subject position in Italian is a Topic position inside the CP domain, as has been proposed by several authors for French (Kayne and Pollock (1998)), Spanish (Ordoñez (1997), Barbosa (1998)) and Italian (Poletto (in press)), we can account for the pattern in (8) and (9) in a direct way: in main questions there is no suitable position for the subject DP at the right of the *wh*-item, as the SpecTopic position where the subject is realized is higher than the *wh*-item. The only position for preverbal subjects in languages like standard Italian is higher than the position of *wh*-items in TQs, as shown in (9a), or right dislocation (as in (9b) - (see Poletto and Pollock (1999) for a detailed analysis of postparticipial subjects).

This proposal also provides an explanation for data like the following, which are completely unexpected under Rizzi's (1991) analysis:

(11) a Cosa mai avrebbe Gianni potuto fare, in quel frangente?
what ever had+conditional John could do, in that situation

b *Cosa avrebbe Gianni fatto se sua madre gli avesse dato l'eredità?
what had+conditional John done if his mother had given him the heritage

c *Cosa avrebbe John concluso leggendo quell'articolo?
what had+conditional John concluded reading that article

In (11a) the subject is located between the auxiliary *avrebbe* and the past participle *potuto*, hence this is a genuine case of «Germanic inversion», as the subject is located between the auxiliary and the past participle. Both the *wh*-item and the inflected verb occupy a position higher than the subject DP, but notice that this question is precisely an instance of what we have defined as RQ in the introduction above. Germanic inversion of a DP subject is allowed only in one type of interrogative sentences, namely RQs, while it is sharply ungrammatical in all other interrogative structures.[7] Notice in fact that if the sentence is interpreted as a true question, Germanic inversion of the subject is ungrammatical, even in sentences that contain a verb in the conditional, as shown by (11b) and (11c).

The most natural explanation for the contrast between (2a) and (11a) is that only in (11a) do the *wh*-item and the inflected verb move to a position which is high enough to cross over the DP subject position.

Hence, the contrast between (2a) and (11) induces us to hypothesize that *wh*-items can occur in more than one position, which can be lower or higher than the subject SpecTopic position (cf. (12)). Moreover, each position corresponds to a distinct interpretation of the question.

(12) $[_{XP}$ rhetorical WH $[_{SubjectP}$ DP $[_{FocusP}$ true WH ...]]

Structure (12) shows the layering of the functional projections inside the CP domain. We follow here Rizzi (1997) that wh-items in true questions occur in a SpecFocus position, although the structure of the true interrogative is probably much more complex (cf. Pollock, Munaro and Poletto (1999). As we are not focussing on true questions but on RQs, we simply indicate the position of the wh-item as SpecFocus.

---

7. Other non-interrogative structures, like Aux-to-C constructions, show the same pattern; we will not take them into account here, although it can be shown that in all these cases the verb raises very high in the Comp domain, crossing the subject position and the position of left dislocated items.

2.2. *Wh*-RQs and Left dislocation

The second argument in favor of the idea that *wh*-items move higher in RQs than in other interrogative sentences is provided by the position of Left Dislocated elements. In what follows we will distinguish the Left Dislocation construction from the so called Hanging Topic (the Nominativus Pendens of the traditional grammars), as only LD singles out the difference between RQs and TQs.[8] Note that in TQs the only position for a left dislocated element is at the left of the *wh*-item, as in (13):

(13) a A Gianni, cosa gli hai dato?
to John, what to-him have (you) given?
b *Cosa, a Gianni, gli hai dato?
what to John to-him have (you) given

The contrast between (13a) and (13b) is very sharp and it has been interpreted in recent analyses of the left periphery of the sentence like Rizzi (1997) and Benincà (1998) as a clue to the fine structure of the CP domain, and precisely as an argument for a structure like the following:

(14) $[_{\text{TopicP}}$ LD $[_{\text{FocusP}}$ WH ...]]

The Topic position which contains left dislocated items is higher than the position where *wh*-items are moved in languages like Italian.

Note however, that the situation is different if we consider RQs:

(15) ?Cosa mai, a Gianni, avresti potuto dirgli che lo tirasse su in un momento simile
what ever, to John, had+conditional could tell-him that cheered him up

---

8. Hanging Topic can be quite easily distinguished from Left Dislocation, as only Left Dislocation copies the case of the clitic, while Hanging Topics can only be DPs and not PPs. In order to disambiguate between the two constructions we use an indirect object with the preposition *a*, which singles out the LD construction.

in such a moment

This sentence is perceived by many informants as marginal, but it clearly contrasts with the example in (13b), which is totally excluded.[9] Note that the position of the verb is lower than the left dislocated item, and this might give rise to the marginality effect found in (15). Rizzi (1997) postulates in his analysis of the left periphery that the Topic° position is not a suitable position for the inflected verb, as it already contains «topic» (probably nominal) features which are not compatible with it. Therefore, the verb has to remain lower than the Topic° position (otherwise it would have to jump over Topic° to land in a higher head position, yielding an instance of improper movement). Suppose that the position of the verb in *wh*-RQs is usually the head of an FP located higher than the TopicP, presumably the head of the FP whose specifier hosts the *wh*-item. The fact that in (15) the Topic° position is not accessible to the verb can now explain the marginality effect.

Note that the raising of the verb to a position higher than Topic° increases the unacceptability of the sentence, though there is still a clear contrast with TQs displaying the same order, which are totally ungrammatical:

(16) a ??Cosa mai avresti, a Gianni, potuto dirgli, che lo tirasse su in un momento simile
what ever have+conditional to John tell him, that cheered him up in such a moment

b *Cosa gli hai, a Gianni, detto
what to-him have to John told

Note that the difference cannot be attributed to the fact that in (16b) the clitic c-commands the left dislocated item, as similar cases are found in Aux-to-Comp constructions and they are judged by many speakers as grammatical, as (17) shows:

---

9. Note that all these sentences have to be uttered with a «broken intonation», i.e. with a comma before and after the left dislocated element, while this is not the case when the left dislocated item is the first element of the sentence. This is a general phenomenon which also occurs when left dislocation in Aux to C environments is tested.

(17) Avendolo, il contratto, già firmato, ...
having-it, the contract, already signed ...

Therefore, we will assume that the position of *wh*-items in RQs is higher than the position where they usually occur in true questions. More precisely, we will propose a structure of the left periphery of the type illustrated in (18):

(18) [$_{XP}$ rhetorical WH [$_{TopicP}$ LD [$_{FocusP}$ true WH ...]]]

We will not give a more precise characterization of the XP projection for the moment.

3. Realis modality in RQs

In the introduction we defined *wh*-RQs as those questions containing a wh-item modified by the adverb *mai*. As seen above, *mai* can cooccur with a realis mood, like the indicative. On the other hand, it can cooccur with an irrealis mood like future, conditional or subjunctive (only in embedded contexts) or even with a modal verb like *potere* 'can'.

Examples illustrating the case of irrealis forms are given under (19):

(19) a Cosa mai avrei potuto dire?
what ever have+conditional could say

b Mi sono chiesto cosa mai un uomo possa fare ...
I wondered what ever a man can+subjunctive do ...

c Quando mai avrà un lavoro, quel benedetto ragazzo?
when ever will-have a job, that blessed boy

Note that (19a) contains a compound conditional tense, but the RQ interpretation is found also with the present of the modal verb *potere* 'can':

(20) Cosa mai può fare?

what ever can do

RQs with a realis mood without a modal are also possible, the present or the present perfect indicative are grammatical as the following sentences show:

(21) a Quando mai ci va Gianni, al cinema?
when ever there goes John, to the cinema
b Cosa mai ha detto di tanto grave?
what ever has said so serious

In all cases the interpretation is that of a RQ, and implies that the answer to the question is a negative one.[10]

Although both RQs with a +realis mood and -realis mood have the same interpretation, there are some facts about subject inversion which show that -realis mood can raise higher than + realis verbal forms. When we discussed the «Germanic» type of inversion found only in RQs but not in other interrogative types, we used a –realis verbal form; the example is repeated here as (22):

(22) Cosa mai avrebbe Gianni potuto fare, in quel frangente?
what ever had+conditional John could do, in that situation

If we substitute the conditional in (22) with a +realis verbal form, the sentence degrades:

(23) a ?Cosa mai può Gianni fare, in un frangente simile?
what ever can John do, in such a situation
b ?Quando mai ha Gianni mangiato patate?

---

10. Note however that there is a difference between –realis RQs and + realis RQs. In the first case the interpretation is always the «canonical» rhetorical one, and corresponds to a negation of the values of the wh-item itself. + realis RQs can also have this interpretation, but in some cases can also be interpreted as containing a negation which does not have scope on the wh-itself but on the whole interrogative and can be paraphrased as «I cannot imagine what the value of the wh-item is». We will elaborate on this in the next section and propose a structural explanation for this.

when ever has John eaten potatoes

Note however that (23) is not totally ungrammatical as (11b) or (11c) are. Hence, there is still a difference between RQs and other types of *wh*-interrogatives. Moreover, it seems that inversion does not depend here on the RQ status of the sentences itself, but on the movement possibilities of the verbal form, as a sentence like (23b) becomes perfectly grammatical if the order is *wh*-item-subject-verb:

(24) (E) quando mai Gianni ha mangiato patate?
(and) when ever John has eaten potatoes

Again there is a sharp contrast between (24) and the corresponding non-rhetorical questions, which (as already noted by Rizzi (1991)) do not tolerate the order *wh*-item - subject (cf. (8b)). Therefore, we can interpret the contrast between (22) and (23) as a function of verb movement: in all RQs the *wh*-item is located higher than the subject position. Therefore, in all RQs we find the order *wh*-item - subject. However, - realis verbal forms can climb higher than + realis forms; more precisely, - realis verbal forms occupy a position higher than the subject, while + realis verbal forms occur lower than the subject. The structure of the two types of RQs would thus be the following:

(25) a [$_{XP}$ rhetorical WH **V** [$_{subjectP}$ DP [$_{FocusP}$ true WH ...]]]
b [$_{XP}$ rhetorical WH [$_{subjectP}$ DP **V** [$_{FocusP}$ true WH ...]]]

(25a) corresponds to (22), while (25b) corresponds to (23). Note that for the sake of concreteness in (25b) the verb occurs higher than the position where *wh*-items occur in non-rhetorical questions, but we do not have any principled reason for putting it in that position. It might well be the case that the verb occurs in a position lower than FocusP or even in Focus°. At present we do not have any evidence for choosing one of these options, therefore we will leave this matter open.

The structures in (25) show that the contrast between (22) and (23) does not invalidate our argument in favor of the idea that rhetorical *wh*-items are located higher than the subject position while this is not the case in other types of interrogative structures. However, note that they also show that there cannot be a

Spec-head agreement relation between the verb and the *wh*-item in interrogative sentences in Italian (as assumed by Rizzi (1991)), because in example (24) the subject can intervene between the *wh*-item and the inflected verb.

4. The positions of *mai*

In this section we will examine the positions of *mai* in *wh*-interrogatives. It has to be noted that *mai* can also occur in positions which are not adjacent to the *wh*-item, as the following examples show.

(26) a Cosa avrebbe **mai** Gianni potuto fare ...
what had+conditional even John could do ...

b Cosa avrebbe Gianni **mai** potuto fare ...
what had+conditional John ever could do ...

c Cosa avrebbe Gianni potuto **mai** fare ...
what had+conditional John could ever do ...

d Cosa avrebbe Gianni potuto fare **mai** in quel frangente [11]
what had+conditional John could do ever in that occasion ...

We will consider here two alternative analyses and provide arguments to the effect that in all the cases in (26) the structure is different from the cases in which *mai* occurs to the immediate right of the *wh*-item when the verb is a - realis form.

The first analysis considers cases like (26) as instances of a process fundamentally similar to quantifier floating, in which the *wh*-item and the adverb *mai* form a constituent from which the *wh*-item has been moved further to satisfy additional features leaving the adverbial form behind in a lower position. In this perspective, there is a point in the derivation in which the *wh*-item and the adverb form a constituent, from which the *wh*-item is extracted leaving a trace inside the constituent. We will refer to this hypothesis as the «constituent hypothesis».

---

11. We insert here the phrase «in that occasion» because many speakers judge sentence-final *mai* as marginal, probably because of focus reasons.

Alternatively, we might consider cases like (26) as having nothing in common with the RQ structures we have examined up to now. In other words, the adverb and the wh-item would not form a constituent at any point in the derivation. We will refer to this as the «non-constituent hypothesis».

A stronger version of this analysis considers all the cooccurrences of *wh*-items and *mai* as non-constituents, hence also cases in which the *wh*-item and the adverb occur in adjacent positions as non-constituent, but simply happen to be adjacent in the string although they are located in different FPs.

It can be immediately shown that this stronger version of the non-constituent analysis is not correct and that the *wh*-item and the adverb can form a constituent, as they can be extracted together.

(27) Cosa mai credi che avrebbe potuto fare?
what ever believe that had-conditional could do?
'What do you think that he might have done?'

(27) shows that the *wh*-item and the adverb can form a single constituent, although it does not show that they must.

Moreover, the adverb *mai* is incompatible with nominals like *diavolo* 'the hell', a fact which can be immediately explained if we suppose that the adverb forms a constituent with the *wh*-item, as the *wh*-item and the nominal do:

(28) a ??Cosa mai diavolo avrebbe potuto fare in quel frangente?
what ever the hell had+conditional could do in that occasion

b ??Cosa diavolo mai avrebbe potuto fare in quel frangente?
what the hell ever had+conditional could do in that occasion

Therefore, we have to discard the hypothesis that the *wh*-item and the adverb never form a constituent.

However, there is evidence that the weaker non constituent hypothesis is on the right track, at least for the cases in which the *wh*-item and the adverb are not adjacent, but probably also for some cases in which they are adjacent if the verb is a + realis form (see footnote 10).

Let us first consider the cases in which the *wh*-item and the adverb are not adjacent, as in (26).[12] In these examples, the adverb and the nominal modifying the *wh*-item can cooccur:

(29) Cosa diavolo avrebbe mai potuto fare in quel frangente?
What the hell had+conditional ever could do in that occasion?

We can interpret the contrast between (28) and (29) as an argument in favor of the idea that in (29) the *wh*-item and the adverb never form a constituent at any point in the derivation, and that this leaves space for the nominal *diavolo*. In (28), the fact that the two elements are adjacent and that, as we will see, the verb is inflected in a - realis form forces the speaker to interpret the sequence *wh*-item - *mai* as a constituent, which triggers the ungrammaticality of *diavolo* in these structures.

Another argument in favor of the weak non-constituent hypothesis is the interpretation of sentences like (26): some informants note that when *mai* and the *wh*-item occur in non-adjacent positions, the meaning changes with respect to a RQ:

(30) a Quando mai sarebbe partito?
when ever were+conditional left
b Quando è partito mai?
when is left ever

A sentence like (30a) is uttered when the speaker intends to underline that the person in question has never left, while (30b) is a true question, uttered when the speaker cannot figure out when the person in question has left. As already noted in

---

12. Note that the adverb *mai* can also be found in yes/no questions in a position immediately following the verb, but does not single out a rhetorical interpretation:

(i) Potrebbe mai esistere un uomo così?
could ever exist such a man?

We will not consider yes/no questions here.

footnote 10, this interpretation contains a negation which does not have scope over the *wh*-item only but over the whole *wh*-question.

Note that the interpretation of (30b) is possible only when the verb is in its + realis form. If the verb is a – realis form as in (28a), this interpretation is excluded.

Moreover, in (30b) the *wh*-item and the adverb are not adjacent, but the interpretation of (30b) is also possible when the *wh*-item and the adverb are adjacent, as already noted in footnote 10, provided the verb is in a + realis form. Summing up, the situation is the following: a) when the *wh*-item and the adverb are not adjacent we only have a negation on the whole predicate, b) when the *wh*-item and the adverb are adjacent and the verb is a – realis we only have negation on the *wh*-item c) when the *wh*-item and the adverb are adjacent but the verb is a + realis form then we can have both interpretations.

At this point we have to explain a) why the two interpretations are distributed as they are and b) a more basic question that we did not formulate clearly up to now but which has been at the basis of this work, namely the reason why *mai*, a temporal adverb is used to single out the RQ interpretation.[13]

---

13. One interesting problem concerns the grammaticality pattern of sentences like the following, in which the position of the adverb with respect to the inverted subject depends on the type of wh-item with the following distribution: only argumental wh-items tolerate the sequence V-adverb-subject, while non-argumental do not.

(i) ???Quando avrebbe mai Gianni potuto partire ...
when had+conditional ever John could leave

(ii) Dove avrebbe mai Gianni potuto andare
where had+conditional ever John could go

(iii) ??Come avrebbe mai Gianni potuto reagire
how had+conditional ever John could react

(iv) Come avrebbe mai potuto chiamarsi
how had+conditional ever could call

Suppose that the interpretation corresponding to «canonical» RQs, namely that negation has only scope on the *wh*-item corresponds to the structure in which the *wh*-item and the adverb form a constituent. The interpretation in which negation has scope over the whole predicate would thus correspond to the structure in which the *wh*-item and the adverb do not form a constituent, as in (26). This assumption that each interpretation corresponds to a different structural relation between the *wh*-item and the adverb provides us with the tools to explain the two puzzles mentioned above. When the *wh*-item and the adverb are not adjacent, there is no evidence for them to form a single constituent, therefore all sentences in (26) only have the interpretation in which negation has scope over the entire predicate. When the *wh*-item and the adverb are adjacent, we have in principle two possibilities: the *wh*-item and the adverb can be adjacent because they form a constituent or they might be adjacent but occur in different FPs. The difference between + realis and – realis verbal forms can be connected to another difference which has already been discussed in section 3, namely the raising possibilities of the different verbal forms. As we have seen, - realis forms raise higher then + realis verbal forms. This means that a + realis verbal form leaves more structural space for a non-constituent analysis of the sequence *wh*-item adverb. In other words, the fact that – realis forms raise higher forces the speaker to analyze the sequence in (30a) as a single constituent, while this is not necessary in cases like (31), and forbidden in cases like (28b), in which the verb intervenes between the *wh*-item and the adverb:

(31) Quando mai è partito?
When ever is left?

Therefore, the hypothesis that the two interpretations are connected to two distinct structures solves the first puzzle. Moreover, it also gives us some hints concerning the reason why the adverb *mai* has the function it has in the structure. *Mai* is not only a temporal adverb, it is also a negative one, and here it is its negative value which signals the scope of negation in these sentences. At this point of our research this is only an intuition, which needs to be further developed. In particular,

---

(v) Come avrebbe mai Gianni potuto comportarsi
how had+conditional ever John could behave

it is necessary to establish the reason why just the adverb *mai* is used among possible negative elements (for instance, why aren't there RQs with the negative marker *non* 'not', if a negative element has to be added). Another problem is raised by RQs in which the rhetorical interpretation is achieved by simply stressing the *wh*-item without adding other elements like the conjunction *e* 'and' or *ma* 'but', which can only be used in main but not in embedded clauses:

(32) a Ma cosa avrebbe potuto fare in un frangente simile?
but what had+conditional could do in such a situation

b E cosa avrebbe potuto fare in un frangente simile?
and what had+conditional could do in such a situation

(33) a *Mi ha domandato ma cosa avrebbe potuto fare ...
he asked me but what had+conditional could do ...

b Mi ha domandato e cosa avrebbe potuto fare ...
he asked me and what had+conditional could do ...

Another interesting development concerns the possible positions where *mai* can occur when it does not form a constituent with the *wh*-item, as there seem to be more than one possibility, as (26) shows. These facts might provide evidence for a very precise mapping of the functional structure activated in languages like Italian inside the IP and the CP domains. We leave these different questions to future work.

5. Rhetorical *wh*-questions in French

Let us now turn to RQs in French and consider the consequences of the preceding analysis, under the hypothesis that French shares the structure of its left periphery with Italian, the null hypothesis.[14] In French, contrary to Italian (cf. (6), above),

---

14. Cf. Munaro, Poletto and Pollock (1999), where the same hypothesis is shown to lead to important explanations and generalizations.

NPIs are generally licensed in the presence of rhetorically interpreted *wh*-phrases.[15] We thus adopt the licensing of NPIs as formal criterion for the rhetorical status of *wh*-questions. We illustrate this fact in (34) vs. (35): replacing the indefinite *quelque chose* 'something' in the ambiguous (34a,b) by the NPI *quoi que ce soit* 'anything' (literally 'what that this be (subjunctive)') yields (35a,b), which can only be interpreted as RQs:

(34) a Qui a dit quelque chose?
who said something
b A qui ai-je promis quelque chose?
to whom have-I promised something

(35) a Qui a dit quoi que ce soit?
who said what that this be ('anything')
b A qui ai-je promis quoi que ce soit?
to whom have-I promised what that this be ('anything')

Like the weak NPI *quoi que ce soit* (and, analogously, *qui que ce soit* 'anyone', *où que ce soit* 'anywhere', etc.), strong NPIs like *lever le petit doigt* (lit. 'to lift the little finger') can be licensed by argumental *wh*-phrases:

(36) a Qui a levé le petit doigt pour elle?
who lifted the little finger for her
b Pour qui a-t-il levé le petit doigt?
for whom has he lifted the little finger
c Quand a-t-il levé le petit doigt pour ses amis?
when has he lifted the little finger for his friends [16]

---

15. Subject to certain restrictions which are much less severe than in Italian, and do not concern us here.

16. See Lee (1996) for the optional argument status of certain *wh*-phrases including *when*.

Again, these questions can only be interpreted rhetorically. NPI licensing, then, may be used in French to identify wh-RQs (see note 15).

Let us go one step further and check the possibility of topic intervention between the *wh*-phrase and TP. (37) shows that in TQs, as in Italian, the topic is clearly preferred to the left of the *wh*-phrase. The acceptability of the inverse order slightly improves in RQs; we leave open the question why (38) is not perfect.

(37) a ??Quand, à Jean, lui as-tu donné le livre?
when to J to-him have you given the book
b A Jean, quand lui as-tu donné le livre?

(38) ?Quand, à Jean, lui a-t-elle prêté quoi que ce soit?
when to J to-him has she lent anything

6. Rhetorical *wh*-phrases «in situ»?

The preceding French examples, with the *wh*-phrase in sentence initial position, are compatible with the predictions made by our analysis of Italian. Against the background of our hypothesis concerning the higher raising of rhetorical *wh*-phrases, the French data we will now turn to are particularly interesting, since they suggest, at first blush, that the hypothesis is incorrect - that is, too strong - for French. It is well-known that French can make extensive use of so-called *wh*-in-situ in nonformal speech.[17] (39a-c) are indeed ambiguous between a TQ and a RQ interpretation. More precisely, while (39a-c) can have an ordinary question interpretation, they may

---

17. The in principle also possible echo question interpretation is available in (39c), provided the appropriate echo intonation is present. In (39a) and (39b), echo question interpretation is excluded by the context, i.e. by sentence initial *et* and *mais*, logically incompatible with a demand for repetition of an element of preceding discourse.

For extensive discussion of French *wh*-in-situ, as well as certain parallelisms with (the much more restricted) *wh*-in-situ in English, see Obenauer (1994, chap. III).

also be interpreted as meaning that 'nothing is being proved', that 'nobody will be impressed', and that 'nothing would have been changed'.

(39) a Et ça prouve quoi?
and this proves what

b C'est bien joli, mais ça va impressionner qui?
that's sure nice but it will impress who

c Ça aurait changé quoi?
that would-have changed what

(Obenauer 1994, 319)

Obenauer (1994) analyzed these cases as having unmoved *wh*-phrases «in situ». We will adopt here a more recent hypothesis concerning sentence internal *wh*-phrases, namely, the one made in Pollock, Munaro and Poletto (1999). According to these authors, overtly sentence internal *wh*-phrases in French raise to a lower operator position of the CP-domain - in fact, to Spec, FocP - while sentence initial *wh*-phrases move up to a higher position, namely, Spec, ForceP. The *wh*-phrases in (39) appear to be unmoved because the rest of the sentence has itself raised higher to their left (for detailed justification, we refer the reader to Pollock, Munaro and Poletto (1999)). The fundamental question remains: do (39a-c) invalidate the extension of our earlier hypothesis to French?

We will argue that this is not the case, that the hypothesis is correct for French as well, and that (39a-c) are simply instances of the general possibility of having *wh*-phrases in a lower position in French, and not true cases of RQs. This claim will be based on the fact that there are two types of interrogative *wh*-structures in French which are exclusively interpreted as RQs, not as TQs, and that in these structures, the *wh*-phrase is always sentence initial, as in fact predicted by our analysis of Italian.

The relevant data involve quantified NPs, in contrast to the bare *wh*-quantifiers shown in (39). We therefore begin by establishing that like bare *wh*-quantifiers, quantified NPs can regularly appear «in situ» (i.e., in noninitial position). (40a, b) show the phrases *quel film, quelle épice* in initial position, and (41a, b) show them in noninitial position.

(40) a Quel film y a-t-il à la télé?
what movie is there on TV

b Quelle épice as-tu as mise dans la sauce?
what spice have-you put into the sauce

(41) a Il y a quel film, à la télé?

b Tu as mis quel épice dans la sauce?

All of (40)-(41) are well-formed as TQs. Consider now (42).

(42) Quel intérêt y a-t-il à aller à ce congrès?
what interest is there to go to this congress

For certain speakers, (42) can only be interpreted as meaning that there is no interest in going to the congress, while for others (42) is ambiguous between a TQ and a RQ. The relevant point is that the speakers of the first type, who only interpret (42) as a RQ, reject the analog with the *wh*-phrase in situ, while the other speakers accept (43):

(43) (*)Il y a quel intérêt, à aller à ce congrès?

This suggests - contrary to (39) - that the sentence initial position is crucial for rhetorical interpretation, an assumption confirmed by the following case. (44) is unambiguous for all speakers; it contains a complex *wh*-expression with an inherently rhetorical meaning:

(44) Quel mal y a-t-il à vouloir devenir riche?
what harm is there to want to-become rich

(43) is not interpretable as a TQ asking the addressee to specify the value of x such that x is a harm inherent to the wish to become rich, but only with a ' there is no harm ...' meaning.

(45) *Il y a quel mal à vouloir devenir riche?

there is what harm to want to-become rich

Concerning (44)/(45), notice that in the more stereotypical (46):

(46) Quel mal y a-t-il à donner de l'argent aux pauvres?
what harm is there to give money to the poor

a rhetorical interpretation of the *wh*-phrase is strongly favored by the clausal context, for pragmatic reasons; we deliberately avoid such «conditioning» in (44)/(45) by choosing, on the contrary, a context which would be perfectly in line with a true question interpretation. But this type of interpretation is precisely what is impossible in (44)/(45); the expression *quel mal y a-t-il* has a rhetorical meaning inherently.

Wh-expressions with inherent rhetorical meaning, then, are excluded in sentence internal position; they must raise to initial position, as predicted by the hypothesis developed above.

This clear result leaves open the question why sentences like (39), with «*wh*-in-situ», can have a rhetorical interpretation. The preceding discussion leads to the conclusion that a genuine rhetorical interpretation is possible only in the high position we argued for. If this is correct, the seemingly rhetorical interpretation of sentences like (39) must be a derived effect. We will adopt the solution proposed in Obenauer (1994, 319f), where such structures are considered to be true *wh*-questions, used with the aim of defeating the opponent. The rhetoric tactics used take advantage of the contradiction between the (true) request for providing the value(s) of the variable, on the one hand, and the presumed inability of the addressee to do so, on the other. In other words, the rhetorical effect in questions like those in (39) arises as a result of the speaker's expectation that his true question will force the addressee to concede that no (acceptable) value exists.

Obenauer (1994, 320) notes that if this approach of (39) is basically correct, it follows that the «in-situ» position is excluded for *wh*-phrases in those cases where the strategy just outlined, i.e. via a true question, is not available. This, it is noted there, is precisely what one finds in cases of inherent rhetorical meaning, as in (47), for example, or in the second type of structures we will examine below.

Before doing so, let us consider an apparent alternative to the treatment of (39) we just adopted, and show why it is not a viable alternative. One might suggest that,

contrary to appearances, these «in situ» *wh*-questions do conform to the analysis in terms of «high movement», and therefore are syntactically genuine RQs. Under this hypothesis, the *wh*-phrase has raised to the high Spec position in the CP domain, but the rest of the sentence has itself raised - for reasons that remain to be determined - to a still higher position, with the result seen in (39).[18] Such an analysis is untenable, since it predicts that (45) (and (43), for the speakers in question) are well-formed. The inability of this analysis to explain the crucial contrast (44) vs. (45) ((42) vs. (43)), then, is a strong argument to the effect that *wh*-phrases «in-situ» move to a low CP-layer, if indeed they do move.

Let us turn now to the second type of evidence in favor of obligatory sentence initial position for rhetorical *wh*-phrases. Consider the following sentences:

(47) a Quelle admiration a-t-elle pour lui?
what admiration has-she for him

b De quelle arrogance a-t-il fait preuve?
of what arrogance has he made proof
'What arrogance has he shown?'

(48) a *Elle a quelle admiration pour lui?

b *Il a fait preuve de quelle arrogance?

On a par with (44)/(45), the examples in (47) cannot be interpreted as TQs, but only as RQs, the meanings conveyed being that no admiration is felt and no arrogance shown.[19] As in the previous case, the *wh*-phrase again can occur overtly only in

---

18. A possibly innocuous complication arising in this context stems from the fact that stating the conditions under which *quoi* 'what' must be replaced by *que* becomes more difficult. Since the argument in the text suffices to exclude the «high-position» analysis for (39), it is unnecessary to further examine this complication.

19. Sentences of this type often have an «echo» flavor, as a kind of take-up of preceding discourse. The important observation is that even with this type of interpretation, normally compatible in French with sentence internal position, the *wh*-phrases in question are acceptable only in sentence initial position.

sentence initial position. The prediction of our hypothesis concerning the higher landing site for «structurally rhetorical» *wh*-questions, as we might call them by now, is again borne out. French behaves - in spite of the general availability of *wh*-in-situ - as our analysis of Italian leads us to expect.

7. A parallelism between RQs and negation

Independently of the common structure we established, there is one difference between the two types of genuine RQs in French that we will address before concluding. Contrary to the type manifested in ((42) and) (43), the one in (47) cannot be said to be based on complex *wh*-expressions - *quel intérêt y a-t-il, quel mal y a-t-il* - marked as inherently rhetorical in the lexicon. Indeed, the relevant elements in the examples in (47) are the nouns *admiration, arrogance*, which are members of a larger class with the same behavior, viz., the class of psych-nouns, with no obvious relation to *wh*-interpretation.

The question, then, arises as to why the examples in (47) are excluded with a TQ interpretation, but possible with a RQ interpretation. Let us begin with the first part of the question. An approach which suggests itself relates the impossibility of (47a, b) as TQs to a salient property of the psych-nouns in question, namely, the fact that they are [-count]. (47a, b), it seems, cannot have a standard interrogative interpretation because *admiration* and *arrogance* are mass nouns which are incompatible with a set of individuals acting as possible values of the variable *x* in (47). In other words, (47a, b) would, as TQs, require (approximate) logical forms of the type

(49) a what *x*, *x* an admiration [... *x* ...]
b what *x*, *x* an arrogance [... *x* ...]

In this respect, the abstract mass nouns *admiration* and *arrogance* behave like the concrete mass nouns *sand* and *flour*, which are again incompatible with

corresponding sets of individuals.[20] It is of course well known that, on the other hand, mass nouns like *sand* and *flour* are acceptable in interrogatives like (50):

(50) a What sand do you recommend for ...
b What flour do you use for ...

in which, however, '... kind/type of sand/flour ...' is the only possible interpretation, expressed informally in (50'):

(50') what x, x a type/kind of sand/flour [... x ...]

(50) in fact uses a possibility of turning [-count] nouns into [+count] nouns. A TQ interpretation of interrogatives with a questioned [-count] nominal, then, is (more or less) impossible to the extent that a type or kind interpretation is (more or less) excluded. Type/kind interpretation is very difficult to obtain with nouns like *admiration* and *arrogance*, whence, presumably, the exclusion of (47a, b) qua TQs.

Let us now turn to the second part of the question: why is RQ interpretation possible in the case of (47) while TQ interpretation is not? A priori, if RQ interpretation were obligatorily based on the same (type of) process as that active in TQ interpretation - that is, construal along the lines of (49) - we should expect (47a, b) to be excluded generally, and not only as TQs. The actual acceptability of (47a, b) might then be taken to cast doubt on the adequacy of the type of representation in (49) even for true *wh*-questions. In other words, the hypothesis that TQs require the association of a set of individuals with the *wh*-word might seem to be put into question.

Alternatively, it might be the case that the intuitively appealing RQ interpretation we referred to in (3), namely, «for no x, x = ... [... x ...]», involves an interpretive process different from the one that rules (47a, b) out qua TQs. This is the path we

---

20. *Admiration* and *arrogance* of course share other properties of [-count] nouns (like, for example, incompatibility with the indefinite article in the absence of further elements; cf. *J'éprouve pour Marie une admiration *(sans bornes)* 'I feel for M. an admiration (without limits)'; we restrict ourselves to the property in the text.

will be led to take. Notice, indeed, that there is a striking parallel between (47a, b) qua RQs, on the one hand, and (51a, b), on the other: [21]

(51) a Elle n'a aucune admiration pour lui.
she 'ne' has no admiration for him
b Il n'a fait preuve d'aucune arrogance.
he 'ne' has shown no arrogance

(51a, b) are as acceptable (or even slightly more so) as the quasi synonymous (52a, b), which contain the sentence negation *ne...pas* and (reduced) partitive forms of the psych-nouns:

(52) a Elle n'a pas d'admiration pour lui.
she does not feel/have admiration for him
b Il n'a pas fait preuve d'arrogance.
he 'ne' has not shown arrogance

---

21. Acquaviva (1995, 79) notes that contrary to English *no*, the Italian negative quantifier *nessun(o)* behaves like the indefinite article with respect to mass nouns: both are excluded in such contexts. Thus, forms like *nessun(a) acqua* 'no water' are impossible on a par with *un(a) acqua* 'a water' (Acquaviva actually suggests that *nessun* is the result of overt incorporation of the D° *un* into the affixal Q° *ne-*). This parallelism extends to French, where *une eau* 'a water' and *aucune eau* 'no water' have parallel status (the remarks in the text concerning 'kind/type of' interpretation apply). Psych-nouns have a somewhat special status here, in that they are generally more easily acceptable with *aucun*, as illustratred by (51), which compares with

(a) ??Elle n'a aucune farine à la maison.
she 'ne' has no flour at home

(with a mass reading, the sentence is normally acceptable only if *aucune* bears heavy stress, which is not required in (48)). We presently do not see the reason of this difference. The relevant point of our discussion - the parallelism between «questioned» psych-nouns in RQs and negated psych-nouns - remains valid.

Let us state the contrast between TQs and RQs in the following way. While true *wh*-questions require possible values of the variable to be individuals (with types/kinds functioning as individuals), sentence negation with *aucun* involves no such requirement, nor do rhetorical questions.[22] This, then, suggests that, with respect to their quantificational component, RQs are - at least in part - not treated as *wh*-questions, but in a way closer to that of sentence negation.[23] We will be satisfied here with this answer to the two parts of our question concerning the interpretive properties of (47a, b).

8. Conclusion

Our study of the syntax of rhetorical questions in Italian and French has brought forward new evidence to the effect that rhetorical questions have structural properties which distinguish them from ordinary («true») questions. More precisely, we have argued that the domain of functional projections in which the proposition proper - that is, IP/TP - is embedded, the «left periphery», contains a specialized layer hosting the *wh*-phrases of RQs. Given its location to the left of topicalized elements, the *wh*-phrases of rhetorical questions in Italian raise to a position higher than the one used as final landing site for *wh*-phrases of ordinary («true») questions. We also showed that verbs move to different positions depending on their ±realis

---

22. Jean-Claude Anscombre (p. c.) points out that another way of expressing the difference is to say that the individuals in the case of sentence negation and of rhetorical questions may be subquantities or «pieces», in contrast with the requirements on individuals in TQs.

23. We do not take a position here with respect to the question whether a (covert) negative constituent is actually present in the structure of RQs. For an analysis making this assumption, see Lee (1996).

It may well be the case that RQs involving *wh*-phrases with [+count] nouns as nominal heads can also (alternatively) resort to a treatment of the type used in TQs. We leave this question open.

modal value, and studied the interaction of the placement of the adverb *mai* with the interpretation.

With respect to the question of the larger validity of the «higher level» hypothesis, French provided interesting testing ground since *wh*-in-situ structures in this language seem compatible, at first sight, with rhetorical interpretation. Closer examination revealed that such cases are not genuine RQ structures, and that the extension of the hypothesis to French leads to correct predictions. The analysis of French *wh*-in-situ structures as true questions embedded in a polemical strategy allows us to account for the absence of such structures in Italian: it simply follows from whatever excludes (non-echo) *wh*-questions in this language. Concerning the quantificational aspect of RQ interpretation, we found a remarkable parallelism between RQs (as opposed to TQs) and sentence negation.

On a more general level, the successful extension of the analysis to French suggests that the hypothesis of a more largely shared structure of the left periphery among the Romance languages is potentially rich and well worth being pursued and deepened.

HG_Obenauer@compuserve.com
poletto@maldura.unipd.it

References

Acquaviva, Paolo (1995) «Operator Composition and the Derivation of Negative Concord», *Geneva Generative Papers* Vol. 3, No. 2, 72-104.

Barbosa, Pilar (1996) «A New Look at the Null Subject Parameter». João Costa et alii, eds., Proceedings of ConSOLE 3, Leiden University.

Benincà, Paola (1998) «La struttura della frase esclamativa alla luce del dialetto padovano», Paola Benincà, Guglielmo Cinque, Tullio de Mauro and Nigel Vincent, eds., *Italiano e dialetti nel tempo- Saggi di grammatica per Giulio C. Lepschy*, Bulzoni, Rome, 23-43.

Han, Chung-Hye and Laura Siegel (1997) «Syntactic and Semantic Conditions on NPI Licensing in Questions», *Proceedings of the 15th WCCFL*, Stanford Linguistics Association, CSLI, 177-191.

Kayne, Richard and Jean-Yves Pollock (1998) «New Thoughts on Stylistic Inversion», talk at the Word Order in Romance conference, Amsterdam, May 1998.

Lee, Felicia (1996) «Negative Polarity Licensing in Wh-Questions: The Case for Two Licensers», ms., UCLA.

Munaro, Nicola, and Hans-Georg Obenauer (1999) «Underspecified *wh*-phrases in pseudo-interrogatives», ms., CNRS Paris-St. Denis / CNR Padova.

Obenauer, Hans-Georg (1994) *Aspects de la syntaxe A-barre - Effets d'intervention et mouvements des quantifieurs*, thèse d'Etat, Université de Paris VIII.

Ordoñez, Francisco (1997) *Word Order and Clausal Structure in Spanish and Other Romance Languages*, PhD dissertation, CUNY.

Poletto, Cecilia (in press) *The Higher Functional Field in the Northern Italian Dialects*, unpublished ms., Università di Padova, to appear at Oxford University Press, New York, Oxford.

Poletto, Cecilia and Jean-Yves Pollock (1999) «Subject Positions in Romance», alk delivered at the Workshop on the Cartography of Functional Projections, Siena 24-26 November 1999.

Pollock, Jean-Yves, Nicola Munaro and Cecilia Poletto (1999) «Eppur si muove - On Comparing French, Portuguese, and Bellunese Wh-Movement», ms., CNRS / Università di Padova, submitted to *Natural Language and Linguistic Theory*.

Quirk, Randolph, Sidney Greenbaum, Geoffrey Leach, Jan Svartvik (1985) *A Comprehensive Grammar of the English Language*, Longman, London, New York.

Rizzi, Luigi (1991) «Residual Verb Second and the Wh-Criterion», Technical Reports in Formal and Computational Linguistics, n° 2, Université de Genève. Reprinted in Adriana Belletti and Luigi Rizzi, eds. (1996), *Parameters and Functional Heads*, Oxford University Press, Oxford, 63-90.

Rizzi, Luigi (1997) «The Fine Structure of the Left Periphery», L. Haegeman, ed., *Elements of Grammar*, Kluwer, Dordrecht.

Some Notes on the Distribution of Japanese Adverbs[1]

Samantha Pozzobon
University of Venice

1. Introduction[2]

In this paper I will examine certain aspects of the distribution of Japanese adverbs, in the light of Cinque (1999). A first very approximate analysis was already proposed in Pozzobon (1998), in which I attempted to apply Cinque's Theory to two SOV languages such as German and Japanese. In this work I'll try to fill some gaps of that first attempt, although the results are far from being exhaustive.

Cinque (1999) proposes that adverbs occupy the unique specifiers position of distinct maximal projections, whose order enter in a fixed universal hierarchy of clausal functional projections. The head positions are filled by other elements: auxiliaries, affixes, suffixes or particles[3], depending on the language.

---

1. I am indebted to Hatsumi Ueda, Hon'ya Asako, Miyagawa Shigeru, Nakayama Etsuko, Sembokuya Kayato, Ilaria Superti and Tanaka Hiroaki for comments and judgements about Japanese examples.

2. For the examples transcription I've adopted the Hepburn transcription system in place of the commonly used Kunrei system.

3. The superficial verbal suffixes order in Japanese is the mirror image of auxiliary order in SVO languages, as predicted by the "mirror principle" of Baker (1985):

i. English: Hanako was made to play the piano

Japanese can realise some verbal aspects, moods and modalities using suffixes or auxiliaries. Since my work concerns adverbs, I will handle verbal heads only when necessary for a best comprehension.

In the following section I will analyse a range of different adverb groups and try to determine an approximate hierarchy of functional projections for Japanese.

2. Japanese Adverbs

Just as other languages, many Japanese adverbs are formed from adjectives by adding

-ku to the adjectival root (es. "utsukushii" = beautiful, "utuskushiku" = beautifully), from the so-called adjectival nouns by adding *-ni* (es. "akirakana" = clear, "akirakani" = clearly) and from verbs by adding *-te/-de* (es. "isogu" = hurry, "isoide" = in a hurry). Then there are also independent adverbs which do not find their corresponding roots in adjectives and verbs (es. "zettai" = never, "zutto" = by far).[4]

2.1. Higher Adverbs[5]

Cinque (1997) and (1999) proposes the following sequence for the higher functional projections:

---

ii. Japanese: Hanako wa piano o narau-are-rare-ta
Hanako-TOP piano-ACC play-CAUS-PASS-PAST

4. S. Tsujimura (1996), for a first discussion.

5. I've adopted the distinction in higher and lower adverbs only for convenience. The adverb sequence is unique, without interruption.

(1) $Mood_{speech\ act} > Mood_{evaluative} > Mood_{evidential} > Mod_{epistemic} > Tense\ (Past) > Tense\ (Fut) > Mood_{irrealis} > Mod_{necessity} > Mod_{possibility} > Asp_{habitual} > (Asp_{predispositional})$

I will not deal in this paper with Tense (Past) and Tense (Future) heads and corresponding adverbs.

2.1.1. Conjunctive Adverbs

Conjunctive adverbs usually are not included in the sentence adverb group, since their function is to connect two different sentences. I will use them just as a test.

(2) *Soreyue kôunni-mo* Tarô ga eigo o oshiete-kure-ta
Therefore fortunately Tarô-NOM English-ACC teach (give)-EVAL[6]-PAST
'Therefore, fortunately Tarô studied English'

(3) * *Kôunni-mo soreyue* Tarô ga eigo o oshiete-kure-ta
fortunately therefore Tarô-NOM English-ACC studied

Conjunctive adverbs act as conjunction and for this reason their position is situated very high in the sentence structure.

(4) CONJUNCTIONAL > EVALUATIVE

---

[6]. The pattern "-te kureru" expresses the meaning of someone doing something for the speaker. It is used from the standpoint of the speaker, generally when the performer of the action is of equal or lesser status than the recipient. Being a sort of "speaker evaluation", in examples (2) and (3) I have indicated "kureru" as "evaluative projection". At the moment I haven't enough data to support this thesis.

2.1.2. Speech act Adverbs

Speech act adverbs give essentially details about a particular communication act, sometimes they are used parenthetically and are accompanied by a verbal form ("speaking" for English, "gesagt" for German and "itte" for Japanese):

(5) *Shôjikini itte mochiron otetsudai dekimas-en*
Frankly speaking surely help can-NEG
'Frankly speaking, I surely can't help you'

(6) ? *Mochiron shôjikini itte otetsudai dekimas-en*
Surely frankly speaking help can-NEG

(7) *Shôjikini itte tashikani* otetsudai dekimas-en
Frankly speaking certainly help can-NEG
'Frankly speaking, I certainly can't help you'

(8) * *Tashikani shôjikini itte* otetsudai dekimas-en
Certainly frankly speaking help can-NEG

(9) SPEECH ACT > EVALUATIVE

2.1.3. Evaluative Adverbs

This type of adverbs give a speaker evaluation about the proposition.

In Japanese evaluative adverbs appear always with the particle "mo". Tamori (1979) points out, that adverbs used with an "evaluative" function must be accompanied by the particle "mo". When they are used as manner adverbs, the particle is not necessary:[7]

---

[7]. Examples from Tamori (1979, 89).

(10) John-wa *kiyôni-mo* /*Ø tsukue o tsukut-ta
John-TOP skillfully desk-ACC make-PAST
'Skillfully, John made a desk'

(11) John-wa *kiyôni* tsukue o tsukut-ta
John-TOP skillfully desk-ACC make-PAST
'John made a desk skillfully'

In (10) 'kiyôni' is used as evaluative adverb (and the particle "mo" is obligatory), in (11) as manner adverb. Other examples:

(12) John-wa *isamashiku-mo*/*Ø jûnin no teki to tatakat-ta
John-TOP bravely ten of enemy with fight-PAST
'Bravely, John fought against ten enemies'

(13) John-wa *isamashiku* jûnin no teki to tatakat-ta
John-TOP bravely ten of enemy with fight-PAST
'John fought against ten enemies bravely'

Tamori (1979) gives to the term "evaluative" a wider interpretation, than the one usually adopted. He also considers some subject-oriented adverbs as evaluative ones, for example:

(14) *Orokani-mo*/*Ø Tarô-ga Hanako-o aishite-i-ru
Stupidly Tarô-NOM Hanako-ACC love-PROGR-PRES
'Stupidly Tarô loves Hanako'

'Orokani-mo' is for Tamori "evaluative". What I suggest is that the particle "mo" is the Japanese equivalent of the German suffix "-weise":

(15) John machte geschickter*weise* ein Schreibtisch
John made skillfully a desk
'Skillfully, John made a desk'

(16) John machte ein Schreibtisch geschickt
John made a desk skillfully
'John made a desk skillfully'

This difference is not visible in English.

As regards to the position of evaluative adverbs in Japanese, we notice that they precede evidential and epistemic adverbs.

(17) *Kôunni-mo tashikani* Tarô ga Hanako o aishite-i-ru
Fortunately surely Tarô-NOM Hanako-ACC love-PROGR-PRES
'Fortunately, Tarô surely loves Hanako'

(18) * *Tashikani kôunni-mo* Tarô ga Hanako o aishite-i-ru
Surely fortunately Tarô-NOM Hanako love-PROGR-PRES

(19) *Saiwaini-mo* Tarô ga *mochiron* Hanako o aishite-i-ru
Fortunately Tarô-NOM surely Hanako-ACC love-PROGR-PRES
'Fortunately, Tarô surely loves Hanako'

(20) * *Mochiron saiwaini-mo* Tarô ga Hanako o aishite-i-ru
Surely fortunately Tarô-NOM Hanako-ACC love-PROGR-PRES

(21) EVALUATIVE > EVIDENTIAL

(22) Kare wa *kôunni-mo tabun* ashita yattekuru desshô
He-NOM fortunately probably tomorrow arrive think
'He will fortunately probably arrive tomorrow'

(23) * Kare wa *tabun kôunni-mo* ashita yattekuru desshô
He-NOM probably fortunately tomorrow arrive think

(24) EVALUATIVE > EPISTEMIC

2.1.4. Evidential and epistemic Adverbs

These two adverb groups (sometimes considered as an unique type, the modal adverbs) are a speaker comment about the sentence degree of probability. It's very difficult to find out a preferred order between these different classes:

(25) ?? *Tashikani kitto* Tarô ga Hanako o aishite-i-ru
Surely certainly Tarô-NOM Hanako-ACC love-PROGR-PRES
'Surely, Tarô loves certainly Hanako'

(26) ?? *Kitto tashikani* Tarô ga Hanako o aishite-i-ru
Certainly surely Tarô-NOM Hanako-ACC love-PROGR-PRES
'Certainly, Tarô loves surely Hanako'

(27) ?? *Akirakani mochiron* Tarô ga Hanako o aishite-i-ru
Obviously surely Tarô-NOM Hanako-ACC love-PROGR-PRES
'Obviously, Tarô loves surely Hanako'

(28) ?? *Mochiron akirakani* Tarô ga Hanako o aishite-i-ru
Surely obviously Tarô-NOM Hanako-ACC love-PROGR-PRES
'Surely, Tarô loves obviously Hanako'

The only sure thing is that modal adverbs come after evaluative ones, as proved in (17)-(20) and (22)-(23).

With respect to the relative order between epistemic and subject-oriented adverbs, it seems that both order are accepted by native speakers:

(29) John wa *tabun kenmeini-mo* onaji hito to deeto shi-na-i
John-TOP probably wisely same person-with date do-NEG-PRES
'Probably, John wisely doesn't go out with the same person'

(30) John wa *kenmeini-mo tabun* onaji hito to deeto shi-na-i
John-TOP wisely "perhaps" same person-with date do-NEG-PRES
'Wisely, John perhaps doesn't go out with the same person'

(31) John wa *osoraku kenmeini-mo* onaji hito to deeto shi-na-i
John-TOP probably wisely same person-with date do-NEG-PRES
'Probably, John wisely doesn't go out with the same person'

(32) John wa *kenmeni-mo osoraku* onaji hito to deeto shi-na-i
John-TOP wisely perhaps same person-with date do-NEG-PRES
'Wisely, John perhaps doesn't go out with the same person'

The interpretation of the examples (29) and (31) is a bit different from that of examples (30) and (32): when the "epistemic" adverb follows the subject-oriented, the sentence indicates a less probable event. Since there is no corresponding term for "maybe" or "perhaps" in Japanese, I suggest that adverbs like "tabun" and "osoraku", which can mean "probably" and also "perhaps", can occupy two different positions: the epistemic one (before the subject-oriented adverbs) and one after them.[8]

2.1.5. Subject-oriented Adverbs

Subject-oriented adverbs give a speaker judgement from the subject perspective in a particular proposition.[9] They are placed after evaluative, evidential and epistemic adverbs and before habitual adverbs:

(33) ? John-wa *kôunni-mo kenmeini-mo* onaji hito to deeto shi-na-i[10]

---

[8]. Sambo (1999, 110-111) notices that in Japanese certain aspect and mood projections present two different heads/projections, with a slight change in interpretation.

[9]. In this work I will not examine subject-oriented adverbs in a detailed way. For convenience I will consider them as an homogeneous group.

John-TOP fortunately wisely same person-with date do-NEG-PRES
'Fortunately John wisely doesn't go out with the same person'

(34) * John-wa *kenmeini-mo kôunni-mo* onaji hito to deeto shi-na-i
John-TOP wisely fortunately same person-with date do-NEG-PRES

(35) EVALUATIVE > SUBJECT-ORIENTED

(36) John wa *mochiron kenmeini-mo* onaji hito to deeto shi-na-i
John-TOP surely wisely same person-with date do-NEG-PRES
'Surely John wisely doesn't go out with the same person'

(37) * John wa *kenmeini-mo mochiron* onaji hito to deeto shi-na-i
John-TOP wisely surely same person-with date do-NEG-PRES

(38) EVIDENTIAL > SUBJECT-ORIENTED

(39) John wa *kenmeini-mo tsûjô* onaji hito to deeto shi-na-i
John-TOP wisely usually same person-with date do-NEG-PRES
'Wisely John usually doesn't go out with the same person'

---

[10]. When two "mo"-adverbs are present in the same sentence, they can cause a sense of "heaviness". The contiguous placement of two "mo"-adverbs sounds strange and funny to the native speakers. For example if we use "saiwa(ni)" in the place of "kôunni-mo" the sentence is acceptable:

i. John-wa saiwai(ni) kenmeini-mo onaji hito to deeto shi-na-i
John-TOP fortunately wisely same person-with date do-NEG-PRES

On the other side, if we use "saiwani-mo", the sentence sounds strange again:

ii. ? John-wa saiwaini-mo kenmeini-mo onaji hito to deeto shi-na-i
John-TOP fortunately wisely same person-with date do-NEG-PRES

(40) ? John wa *tsûjô kenmeini-mo* onaji hito to deeto shi-na-i
John-TOP usually wisely same person-with date do-NEG-PRES

Although both orders seem to be correct, the order *kenmeini-mo* > *tsûjô* is preferred.

(41) SUBJECT-ORIENTED > HABITUAL

2.1.6. Habitual Adverbs

Cinque (1997) proposes the existence of two habitual heads: one higher, event-related, and one lower, process or state-related. In Italian it is possible to say:

(42) Gianni *di solito* frequentava le stesse persone *abitualmente*
'Gianni generally frequented the same persons habitually'

(43) * Gianni *abitualmente* frequentava le stesse persone *di solito*
'Gianni habitually frequented the same persons habitually'

(44) ? Gianni abitualmente frequentava le stesse persone abitualmente
'Gianni habitually frequented the same persons habitually'

I've tried to find out, if also in Japanese there are two different habitual projections:

(45) ??/* John wa *tsûjô* onaji hito to *futsû* deeto shi-na-i
John-TOP generally same person-with usually date do-NEG-PRES
'John generally doesn't go out with the same person habitually'

(46) * John wa *futsû* onaji hito to *tsûjô* deeto shi-na-i
John-TOP usually same person-with generally date do-NEG-PRES

(47) * John wa *tsûjô* onaji hito to *tsûjô* deeto shi-na-i
John-TOP generally same person-with generally date do-NEG-PRES

(48) * John wa *fûtsû* onaji hito to *fûtsû* deeto shi-na-i
John-TOP usually same person-with usually date do-NEG-PRES

'Futsû' and 'tsûjô' basically have almost the same meanings, but 'futsû' is much more commoly used than 'tsûjô', which sounds more formal and official. In my data there are non clear indications of the presence of two different habitual projections. Sambo (1999), in her work about the verbal functional heads in Japanese, suggests that the habitual projection in this language is more an 'habituative' projection, which corresponds in meaning to 'get used to', and not 'use to' or ' be used to', and this could be an explanation for the differences between Japanese and Italian. Since the habituative projection is located after other modal projections, corresponding to subject-oriented adverbs, and before frequentative/repetitive and continuative adverbs, no obvious differences in order are visible[11]. As seen in (39) and (40), the preferred order between 'subject-oriented' and 'habitual' adverbs is *subject-oriented* > *habitual*, but the reverse order is also accepted and with respect to 'frequentative' adverbs, habitual adverbs precede them:

(49) John wa *tsûjô mettani* onaji hito to deeto shi-na-i
John-TOP usually seldom same person-with date do-NEG-PRES
'John usually doesn't go out with the same person seldom'

(50) * John wa *mettani tsûjô* onaji hito to detto shi-na-i
John-TOP seldom usually same person-with date do-NEG-PRES

(51) HABITUATIVE > FREQUENTATIVE

(52) Yamada-san wa *tsûjô mada* nete-i-masu
Yamada-Mr-TOP usually still sleep-PROGR-PRES
'Yamada is usually still sleeping'

---

[11]. See Sambo (1999, 39-44).

(53) * Yamada-san wa *mada tsûjô* nete-i-masu
Yamada-Mr-TOP still usually sleep-PROGR-PRES

(54) HABITUATIVE > CONTINUATIVE

2.2. Lower Adverbs

Lower adverbs are mostly associated with verbal "aspects" and this is the order proposed by Cinque (1999):

(55) $Asp_{repetitive\ I} > Asp_{frequentative\ I} > Mod_{volitional} > Asp_{celerative\ I} >$ Tense (Anterior) $> Asp_{terminative} > Asp_{continuative} > Asp_{perfect\ (?)} > Asp_{retrospective} > Asp_{proximative} > Asp_{durative} > Asp_{generic/progressive} > Asp_{prospective} > Asp_{completive\ I} >$ Voice $> Asp_{celerativeII} > Asp_{repetitive\ II} > Asp_{frequentative\ II} > Asp_{completive\ II}$

I will not consider the two "celerative" projection, although both are present in Japanese, with two different interpretations (in (56) the adverb quantifies over the event, in (57) it quantifies over the process):

(56) John wa *subayaku* te o age-ta
John-TOP quickly hand-ACC lift-PAST
'John quickly lifted his arm'

(57) John wa te o *subayaku* age-ta
John-TOP hand-ACC quickly lift-PAST
'John lifted his arm quickly'

2.2.1. Repetitive and Frequency Adverbs I and II

"Repetitive" adverbs express one action repetition (and only one repetition), on the other side "frequency" adverbs express multiple repetition of the same action.

Both groups can occupy two different positions in the sentence : Repetitive I and II and Frequency I and II.

(58) John wa *mettani* onaji hito to *nandomo* deeto shi-na-i
John-TOP often same person-with seldom date do-NEG-PRES
'John often goes out with the same person seldom'

(59) ? John wa *nandomo* onaji hito to *mettani* deeto shi-na-i
John-TOP seldom same person-with often date do-NEG-PRES

(60) FREQUENCY I > FREQUENCY II

Frequency adverbs are located after habitual adverbs:

(61) Mark wa *futsû yoku* uchi ni iru
Mark-TOP usually often home-in be-PRES
'Mark usually stays often at home'

(62) * Mark wa *yoku futsû* uchi ni iru
Mark-TOP often usually home-in be-PRES

(63) HABITUATIVE > FREQUENCY

(64) Yamada-san wa *tsûjô kurikaeshi* tabete-i-masu
Yamada-Mr-TOP usually repeatedly eat-PROGR-PRES
'(When I arrive home), Mr. Yamada is usually eating repeatedly'

(65) */?? Yamada-san wa *kurikaeshi tsûjô* tabete-i-masu
Yamada-Mr-TOP repeatedly usually eat-PROGR-PRES

(66) HABITUATIVE > REPETITIVE

2.2.2. 'Already'/Tempus Anterior

This adverb indicates that the event happened before the expected time. It is located after frequentative and repetitive adverbs:

(67) Yamada-san wa *yoku mô* tabe-ta
Yamada-Mr-TOP often already eat-PAST
'(When I arrive home), Mr Yamada has often already eaten'

(68) ??/* Yamada-san wa *mô yoku* tabe-ta
Yamada-Mr.-TOP already often eat-PAST

(69) FREQUENTATIVE > ALREADY

2.2.3. 'any/no longer'/Terminative Aspect

Japanese doesn't have a corresponding adverb to 'any/no longer'. This language uses the adverb "mô" 'already' and the negative form of the verb to express that a particular action has finished:

(70) Sono koro ni-wa *mô* nanimo mottei-*nakat*-ta
That time-in-TOP already nothing have-NEG-PAST
'At the time he didn't possess already any longer anything'

2.2.4. 'Still' / Continuative Aspect

'Mada/still' indicates that an event is not ended. The use of the progressive verbal form in Japanese, which usually accompanies "mada", is a confirmation that the action is "still" in course:

(71) Yamada-san wa *tsûjô mada* tabete-i-masu
Yamada-Mr-TOP usually still eat-PROGR-PRES

'(When I arrive home,) Mr Yamata is usually still eating'

(72) * Yamada-san wa *mada tsûjô* tabete-i-masu
Yamada-Mr-TOP still usually eat-PROGR-PRES

(73) HABITUATIVE > STILL

(74) Yamada-san wa *itsumo mada* tabete-i-masu
Yamada-Mr-TOP. always still eat-PROGR-PRES
'(When I arrive home,) Mr. Yamada is still always eating'

(75) ?? Yamada-san wa *mada itsumo* tabete-i-masu
Yamada-Mr.-TOP still always eat-PROGR-PRES

(76) ALWAYS > STILL

2.2.5. 'Always' / Perfective Aspect (?)

As seen in (74) and (75), "itsumo" seems to occupy a position before the continuative projection and after habituative adverbs. This contradicts the expected order 'mada>itsumo', proposed by Cinque (1999). Cinque himself admits that "the whole matter needs to be understood better"[12]. He suggests to correlate "always" with the perfective/imperfective aspect or to a "continuous" aspect, different from the Continuative Aspect ("keep on"/"still"). In Japanese "itsumo" can also have other interpretations, "usually, ever, never, invariably, constantly", which can justify the different behaviour of this adverb.

(77) Yamada-san wa *itsumo tadaima* tabe-ta tokoro desu
Yamada-Mr-TOP. always just eat-PAST-RETR-PRES
'(When I arrive home,) Yamada-san has always just finished to eat'

---

[12]. S. Cinque (1999, 96).

(78) * Yamada-san wa *tadaima itsumo* tabe-ta tokoro desu
Yamada-Mr-TOP just always eat-PAST-RETR-PRES

(79) ALWAYS > JUST

(80) Kare wa hito no tanjobi o *itsumo sukkari* wasurete shimau
Er-TOP people-of-birthday-ACC always completely forget-COMPL[13]-PRES
'He always forgets the birthdays completely'

(81) * Kare wa hito no tanjobi o *sukkari itsumo* wasurete shimau
Er-TOP people-of-birthday-ACC completely always forget-COMPL-PRES

(82) ALWAYS > COMPLETELY

2.2.6. 'Just'/Retrospective Aspect

'Just' expresses that a determinate event has taken place a short while before some reference time. As seen in (77) and (78), "tadaima" follows "itsumo" and precedes "sukkari ":

(83) John wa rôsuto o *tadaima sukkari* kogashite-shimat-ta
John-TOP roast-ACC just completely burn-COMPL-PAST
'John has just completely burned the roast'

(84) ? John wa rôsuto o *sukkari tadaima* kogashite-shimat-ta

---

[13]. I indicate the auxiliary/modal verb "shimau" as completive. Sambo (1999) maintains that this particular verb expresses a "completive aspect" but also an emotional involvement from the speaker's point of view, with a sense of "to end by". For this reason, she calls this aspect "conclusive". I've used the term "completive" to underline the co-presence of "sukkari" and "shimau", both expressing a completive nuance.

John-TOP roast-ACC completely just burn-COMPL-PAST

(85) JUST > COMPLETELY

2.2.7. 'Soon'/Proximative Aspect

'Soon' indicates that an event is going to take place a short while after some reference time.

(86) Anata mo *suguni* subete o *sukkari* wasureru desshô
You-also soon all-ACC completely forget-FUT
'You also will soon all completely forget'

(87) * Anata mo *sukkari suguni* subete o wasureru desshô
You-also completely soon all-ACC forget-FUT

(88) SOON > COMPLETELY

2.2.8. 'Briefly, long' /Durative Aspect

Durative adverbs indicate that an event takes place or has taken place for a certain period of time:

(89) ? John wa kyuka ni tsuite *temijikani tadaima* jôshi to hanashi-ta bakari-da
John-TOP holidays-about shortly just boss-with speak-PAST RETR-PRES
'John has just shortly spoken with his boss about holidays'

(90) John wa kyuka ni tsuite *tadaima temijikani* jôshi to hanashi-ta bakari-da
John-TOP holidays-about just shortly boss-with speak-PAST RETR-PRES

(91) JUST > DURATIVE

2.2.9. 'Almost'/Prospective Aspect (?)

This adverb express that an action is about to begin or be completed:

(92) Anatagata wa sensei ni *hotondo* subete o *yoku* setsumei shi-ta
You-TOP teacher-DAT almost all-ACC well explanation do-PAST
'You have explained almost all well to the teacher'

(93) * Anatagata wa sensei ni subete o *yoku hotondo* setsumei shi-ta
You-TOP teacher-DAT all-ACC well almost explanation do-PAST

(94) 'ALMOST' > 'WELL'

2.2.10. 'Completely' / Completive Aspect I

"Completely" expresses as expected that a certain event has concluded. As seen in (80)-(81), (83)-(84) and (86)-(87), 'sukkari' follows 'itsumo', 'tadaima' and 'suguni'.

(95) Anata mo *suguni* subete o *sukkari* wasureru desshô
You-also soon all-ACC completely forget-FUT
'You also will soon all completely forget'

(96) * Anata mo *sukkari suguni* subete o wasureru desshô
You-also completely soon all-ACC completely forget-FUT

(97) ALWAYS > JUST > SOON > COMPLETELY

2.2.11. Manner Adverbs / Voice

"Light" manner adverbs, like "well" and "bad", are the last group I will consider.

Cinque (1997) and (1999) proposes another sequence of adverbs located after the so-called "voice" projection, where the active or passive verb form is formed. Completive adverbs and light manner adverbs in Japanense (and German), as already pointed out in Pozzobon (1998), seem to be generated deeper in sentence structure than the same adverb groups in other Romance languages. Again, I have no sufficient data to maintain that this is a SOV property.

The Japanese adverb for "well", "yoku" has a double interpretation: it can mean "well" but also "often". The respective distribution is not the same: "often-yoku" is situated higher in the structure than "well-yoku". See the examples:

(98) John wa *yoku* okâsan ni oretachi no koto o *yoku* hanasu
John-TOP often mother-DAT us-of-things-ACC well speak-PRES
'John often speaks with his mother well about us'

The two adverbs can be present in the same sentence, but in the sequence "often-yoku> well-yoku".

(99) John wa *yoku* okâsan ni oretachi no koto o hanasu
John-TOP often/*well mother-DAT us-of-things-ACC speak-PRES
'John often speaks with his mother about us'
'John well speaks with his mother about us'

(100) John wa okâsan ni oretachi no koto o *yoku* hanasu
John-TOP mother-DAT us-of-things-ACC often/well speak-PRES
'John speaks with his mother often/well about us'

"Well-yoku" is not acceptable in a high position as in (99) or in (102). On the other side "often-yoku" is not completely acceptable in a deeper position as in (101).

(101) Anagata wa sensei ni hotondo subete o *yoku* setsumei shi-ta
You-TOP teacher-DAT almost all-ACC well/??often explanation do-PAST
'You explained almost all well to the teacher'
'You explained often almost all to the teacher'

(102) Anagata wa sensei ni *yoku* hotondo subete o setsumei shi-ta
You-TOP teacher-Dat often/?well almost all-ACC explanation do-PAST

With respect to other lower adverbs, "mô" for example, is the behaviour of the two "yoku" forms similar:

(103) Yamada-san wa *yoku mô* tabe-ta
Yamada-Mr-TOP often already eat-PAST
'(When I arrive home,) Yamada has often already eaten'

(104) ??/* Yamada-san wa *mô yoku* tabe-ta
Yamada-Mr-TOP already often eat-PAST

(105) * Yamada-san wa *yoku mô* tabe-ta
Yamada-Mr-TOP well already eat-PAST

(106) Yamada-san wa *mô yoku* tabe-ta
Yamada-Mr-TOP already well eat-PAST
'(When I arrive home,) Yamada has often eaten well'

3. Conclusion

In the previous sections I tried to determine an approximate adverbs hierarchy. To sum up, (107) gives an idea of the results:

(107) $Mood_{speech\ act}$ > $Mood_{evaluative}$ > $Mood_{evidential}$ > $Mod_{epistemic}$ > *subject-oriented* ($Mod_{necessity}$ > $Mod_{possibility}$) > ***Mood***$_{irrealis/epistemic\ II\ (?)}$ > $Asp_{habitual}$ > ($Asp_{predispositional}$) > $Asp_{repetitive\ I}$ > $Asp_{frequentative\ I}$ > ($Asp_{celerative\ I}$) > Tense (Anterior) > ($Asp_{terminative}$) > ***Asp***$_{perfect\ (?)}$ > $Asp_{continuative}$ > $Asp_{retrospective}$ > $Asp_{proximative}$ > $Asp_{durative}$ > $Asp_{prospective}$ > ($Asp_{completive\ I}$) > $Asp_{celerativeII}$ > $Asp_{repetitive\ II}$ > $Asp_{frequentative\ II}$ > $Asp_{completive\ II}$ > ***Voice***

The most evident differences from Cinque's hierarchy are the following:

- a second "epistemic" projection (maybe $Mood_{irrealis}$) located after "subject-oriented" projection ($Mod_{necessity}$ and $Mod_{possibility}$).
- "itsumo" ($Asp_{perfect}$?) precedes the continuative Aspect.
- it seems that Japanese has only one position for completive adverbs, which is situated deep in the structure ($Asp_{completive\ II}$).
- the voice projection (like completive aspect) is located very deep in the sentence structure, as if after Voice no other "place" is available.

Abbreviations

ACC = accusative case
ASP = aspect
CAUS = causative aspect
COMPL = completive aspect
CONT = continuative aspect
DAT = dative case
EVAL = evaluative mood
FUT = future tense
GEN = genitive case
MOD = modality
NEG = negation
NOM = nominative case
PASS = passive voice
PAST = past tense
PRES = present tense
PROGR = progressive tense
TOP = topic

pozzobon@unive.it

References:

Baker. Mark (1985). "The Mirror Principle Morphosyntactic Explanation", *Linguistic Inquiry* 16, 373-415.

Cinque, Guglielmo (1997). *'Restructuring' and the order of aspectual and root modal heads,* Ms., University of Venice. To be published in: Cinque Guglielmo and Gianpaolo Salvi (ed.), *Current Studies in Italian Syntax offered to Lorenzo Renzi*, Holland Academic Graphics, Le Hague.

Cinque, Guglielmo (1999). *Adverbs and Functional Heads. A Cross-Linguistic Perspective,* Oxford University Press, Oxford.

Pozzobon, Samantha (1998). *Zur Distribution der Adverbiale im Deutschen und im Japanischen,* Tesi di Laurea, University of Venice.

Sambo, Sabrina (1999). *L'ordine delle teste funzionali in giapponese,* Tesi di Laurea, University of Venice.

Tamori, Ikuhiro (1979). *A Study of Japanese Adverbs,* Doctoral Dissertation, University of Southern California.

Tsujimura, Natsuko (1996). *An Introduction to Japanese Linguistics,* Blackwell, Oxford.

The series is intended to make the work of the students, faculty and visitors of the Seminario di Linguistica and of the Centro Linguistico Interfacoltà of the University of Venice available for circulation.
The series can be obtained on an exchange basis with other Working Papers.
Requests for single issues should be addressed directly to the authors.

1991: (out of print) **1992:** (out of print)

1993. vol. 3, n.1:

1. G. Brugger: Generic Interpretations and Expletive Determiner.
2. D. Bianchi, R. Delmonte, E. Pianta, S. Sartori: Reference Resolution by Contextual Reasoning from Grammatical Representations with GETA-RUN.
3. M. C. Figuereido Silva: Some Notes on Null Subjects in the Brasilian Portuguese Tensed Sentences.
4. G. Giusti: Enclitic Articles and Double Definiteness: A Comparative Analysis of Nominal Structure in Romance and Germanic.
5. C. Poletto: Subject Clitic / Verb Inversion in North Eastern Italian Dialects.
6. R. Zamparelli: Pre-Nominal Modifiers, Degree Phrases and the Structure of AP.

1993. vol. 3, n. 2:

1. A. Cardinaletti: On the Internal Structure of Pronominal DPs.
2. G. Cinque: On the Evidence for Partial N-Movement in the Romance DP.
3. G. Brugger and C. Poletto: On Negation in German and Bavarian.
4. P. Crisma: On Adjective Placement in Romance and Germanic Event Nominals.
5. A. Cornilescu: Notes on the Structure of the Romanian DP and the Assignment of the Genitive Case.

1994. vol. 4, n. 1:

1. L. Brugè and G. Brugger: On the Accusative 'A' in Spanish.
2. A. Carrasco Gutiérrez and L. García Fernández: Sequence of Tenses in Spanish.
3. V. Demonte: Datives in Spanish.
4. M. L. Zubizarreta: The Grammatical Representation of Topic and Focus: implications for the Structure of the Clause.

1994. vol. 4, n. 2:

1. A. Bisetto: Italian Compounds of the *Accendigas* Type: a Case of Endocentric Formation?
2. G. Brugger and M. D'Angelo: Movement at LF triggered by Mood and Tense.
3. A. Cardinaletti and M. Starke: The Typology of Structural Deficiency. On the Three Grammatical Classes.
4. A. Moro: "Pseudo-extraction" and Problems of Binding: a Case Study in the Syntax of the Predicative Nominals.

1995. vol. 5, n. 1:

1. R. Delmonte and D. Dibattista: Switching from Narrative to Legal Genre.
2. M. Dimitrova-Vulchanova and G. Giusti: Quantified Noun Phrase Structure in Bulgarian.
3. C. Dobrovie-Sorin: On the Denotation and Scope of Indefinites.
4. M. T. Vinet: Adverbial Quantifiers, Negation, and Stress Rules Effects.

1995. vol. 5, n. 2:

1. G. Cinque: The 'Antisymmetric' Program: Theoretical and Typological Implications.
2. G. Giusti and N. Leko: On the Syntax of Quantity Expressions in Bosnian.
3. C. Poletto: Complementizer Deletion and Verb Movement in Italian.
4. L. Progovac: Determiner Phrase in a Language without Determiners.

1996. vol. 6, n. 1:

1. L. Brugè: Demonstrative Movement in Spanish: A comparative approach.
2. A. Cardinaletti: Subjects and Clause Structure.
3. I. Kenesei: On the Interaction of Syntax and Morphology in Hungarian.

1996. vol. 6, n. 2:

1. P. Acquaviva: The Logical form of Negative Concord.
2. P. Benincà and C. Poletto: the Diachronic Development of a Modal Verb of Necessity.
3. V. Egerland: On Pronoun Positions in Swedish and Italian, Antisymmetry, and Person Phrase.
4. G. Giusti: Is there a FocusP and a TopicP in the Noun Phrase Structure?

1997. vol. 7, n. 1-2:

G. Cinque: Adverbs and Functional Heads. A Cross-Linguistic perspective.

1998. vol. 8, n. 1:

1. P. Acquaviva: Morphology, Checking Theory and Polarity Items.
2. P. Benincà and C. Poletto: A Case of 'do support' in Romance.
3. A. Cardinaletti: On the DEFICIENT/STRONG Opposition in Possessive Systems.
4. G. Cinque: "Restructuring" and the order of aspectual and root modal heads.
5. M. Dimitrova-Vulchanova and G. Giusti: Fragments of Balkan Nominal Structure.

1998. vol. 8, n. 2:

1. A. Cardinaletti: A second thought on *Emarginazione*: Destressing vs. "Right Dislocation".
2. G. Cinque: The interaction of Passive, Causative, and "Restructuring" in Romance.
3. G. Giusti: The Rise of A Functional Category From Latin ILLE to the Romance article and personal pronoun.
4. I. Krapova: Subjunctive Complements, Null Subjects, and Case Checking in Bulgarian.
5. L. Repetti: Uneven Trochees in Latin: Evidence from Romance Dialects.

1999. vol. 9, n. 1-2:

1. P. Acquaviva: Allomorphy and morphosyntax in Irish prepositional inflection.
2. A. Cardinaletti: Italian Emphatic Pronouns are Postverbal Subjects.
3. G. Cinque: The Status of "Mobile" Suffixes.
4. G. Giusti: The Functional Structure of Noun Phrases: A Bare Phrase Structure Approach.
5. J.-E. Lee: Korean Adverbs.
6. N. Munaro and H.G. Obenauer: On Underspecified *Wh*-elements in Pseudo-interrogatives.
7. S. Vecchiato: On the Relative Position of *beaucoup*, *guère*, *peu*, *rien*, and *trop* in French.