Incorporating Conjunctions in Polish

Agnieszka Patejuk

Institute of Computer Science, Polish Academy of Sciences and University of Oxford

Abstract

This paper provides a formal analysis of Polish conjunctions, coordinating and subordinating, which are placed in a non-standard position – inside the item they normally precede, possibly deeply embedded.

1 Introduction

Normally Polish coordinating conjunctions occur between the conjuncts that they join, see (1). Putting the coordinating conjunction inside the second conjunct results in ungrammaticality, as shown in (2), where the conjunction *a* 'and/while' follows *Janek*, the nominal subject of the second conjunct:

(1) {[Marysia   grała   na gitarze], a [Janek   śpiewał]}.
       Marysia.NOM played.3.SG.F on guitar   and Janek.NOM sang.3.SG.M
      'Marysia played the guitar and/while Janek was singing.'

(2) * {[Marysia grała na gitarze], [Janek a śpiewał]}.

Similarly, subordinating conjunctions (complementisers) are normally expected to be the first element of the subordinate clause (complementiser clause, CP), see (3). Placing the complementiser in a different position inside the subordinate clause results in ungrammaticality, as shown in (4), where the complementiser *ponieważ* 'because' follows *Marysia*, the nominal subject of the subordinate clause:

(3) [Janek   śpiewał,   [ponieważ [Marysia   grała   na gitarze]]].
      Janek.NOM sang.3.SG.M because   Marysia.NOM played.3.SG.F on guitar
     'Janek was singing, because Marysia played the guitar.'

(4) * [Janek śpiewał, [Marysia ponieważ grała na gitarze]].

However, there are certain conjunctions in Polish, both coordinating and subordinating, which violate the constraints shown above. They may be placed inside the item they are normally supposed to precede: inside the second conjunct or inside the subordinate clause, respectively. Hence their traditional name, "incorporating conjunctions"; still, they are separate, independent words – they are not clitics. In spite of the non-standard position of such conjunctions, they are interpreted in the same way as run-of-the-mill conjunctions. The effect of using incorporating conjunctions is purely stylistic: they are characteristic of highly formal style.

The following conventions are adopted in this paper: partial c-structure bracketing is provided, only selected categories are labelled. In glossed examples and free translations, the incorporating conjunction is in blue, while the item which it follows is in red. Similarly, the partial f-structure of the item which the conjunction follows is marked in red, while the partial f-structure built by the conjunction is marked in blue. Some f-structures are simplified due to limited space available.

1.1 Coordination

In (5) two sentences are coordinated – the first conjunct is headed by BYĆ 'be', while the head of the second conjunct is OTOCZYĆ 'surround'. The conjunction *zaś* 'but' is incorporating – instead of being placed between the two conjuncts, before the adjectival passive participle *dołączony* 'attached', *zaś* follows it. As a result, at the level of c-structure, *zaś* belongs to the second conjunct, as shown in (5).[1]

(5) {[Tekst   był   jawny],   [[[dołączony]ᴀᴘ zaś   [tajny]
      text.ɴᴏᴍ   was.3.sɢ.ᴍ   public.ɴᴏᴍ   attached.ᴀᴄᴄ   but   secret.ᴀᴄᴄ
      protokół] otoczono   szczelną   zasłoną   milczenia]}.
      report.ᴀᴄᴄ surrounded.ɪᴍᴘᴇʀs airtight.ɪɴsᴛ curtain.ɪɴsᴛ silence.ɢᴇɴ
      'The text was public, but the attached report was shrouded in secrecy.' (NKJP)

In terms of f-structure, *dołączony* is an ADJUNCT (ADJ), marked in red, of *protokół* 'report', the object (OBJ) of *otoczono*, an impersonal form of the verb OTOCZYĆ, the head of the second conjunct – see (6). Though *zaś* belongs to the second conjunct in terms of c-structure (it follows *dołączony*), its f-structure contribution (COORD-FORM attribute, marked in blue), is in a different place than the f-structure contribution of *dołączony* (marked in red) – it is in the same place where a non-incorporating conjunction (placed between the conjuncts) would contribute its f-structure.

(6)
$$
\begin{bmatrix}
\left\{
\begin{array}{l}
\begin{bmatrix}
\text{PRED} & \text{'BE<}\boxed{2}\text{>}\boxed{1}\text{'} \\
\text{SUBJ} & \boxed{1}\begin{bmatrix}\text{PRED} & \text{'TEXT'}\end{bmatrix} \\
\text{XC-P} & \boxed{2}\begin{bmatrix}\text{PRED} & \text{'PUBLIC<}\boxed{1}\text{>'} \\ \text{SUBJ} & \boxed{1}\end{bmatrix}
\end{bmatrix}, \\[2em]
\begin{bmatrix}
\text{PRED} & \text{'SURROUND<}\boxed{3},\boxed{4},\boxed{5}\text{>'} \\
\text{SUBJ} & \boxed{3}\begin{bmatrix}\text{PRED} & \text{'PRO'}\end{bmatrix} \\
\text{OBJ} & \boxed{4}\begin{bmatrix}\text{PRED} & \text{'REPORT'} \\ \text{ADJ} & \left\{\begin{bmatrix}\text{PRED} & \text{'ATTACHED'}\end{bmatrix}, \begin{bmatrix}\text{PRED} & \text{'SECRET'}\end{bmatrix}\right\}\end{bmatrix} \\
\text{OBL} & \boxed{5}\begin{bmatrix}\text{PRED} & \text{'SILENCE...'}\end{bmatrix}
\end{bmatrix}
\end{array}
\right\} \\
\text{COORD-FORM} \quad \text{BUT}
\end{bmatrix}
$$

1.2 Subordination

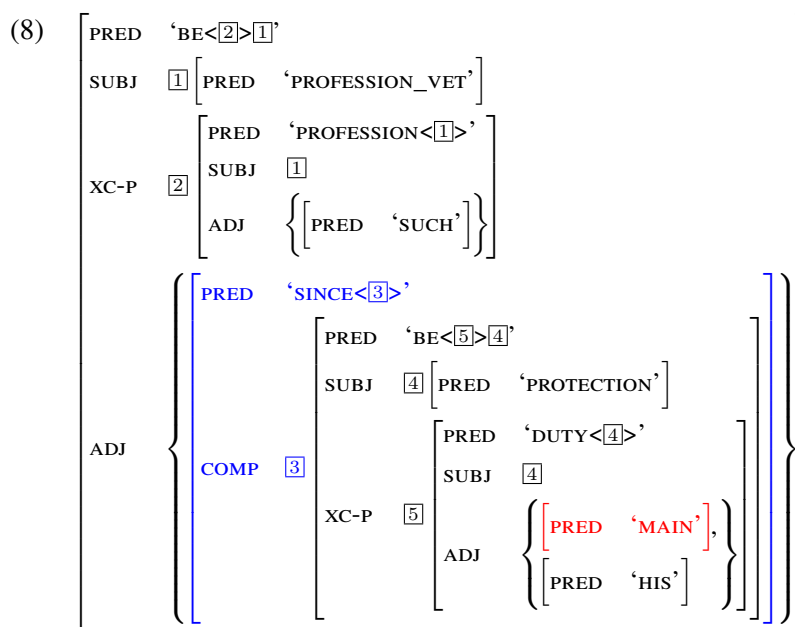In (7) the main clause headed by BYĆ is modified by a subordinate clause introduced by the incorporating subordinating conjunction (complementiser) – *bowiem* 'since' follows the adjective *podstawowym* 'main' which belongs to the subordinate clause at the level of c-structure.

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[1] 'NKJP' marks attested examples taken from the National Corpus of Polish (NKJP, http://nkjp.pl, Przepiórkowski et al. 2012).

(7) [Takim zawodem jest zawód lekarza weterynarii,
    such.INST profession.INST is.3.SG profession.NOM doctor.GEN veterinary.GEN
[[[podstawowym]$_{AP}$ bowiem [jego] zadaniem] jest ochrona]].
    main.INST   since his.GEN duty.INST is.3.SG protection.NOM
'Such a profession is the profession of a veterinarian, since protection is his
main duty.' (NKJP)

In terms of f-structure, *podstawowym* is an adjunct of *zadaniem* 'duty', the predica-
tive complement (XCOMP-PRED, XC-P) of *jest*, a form of the verb BYĆ 'be' – see the
f-structure in (8). In spite of its non-standard c-structure position, *bowiem* makes
the same f-structure contribution as without incorporation: it introduces the predi-
cate SINCE, which is an adjunct (ADJ) of the main clause predicate (BE), and which
takes the main predicate of the subordinate clause (BE) as its complement (COMP).

(8)
$$
\begin{bmatrix}
\text{PRED} & \text{'BE<}\boxed{2}\text{>}\boxed{1}\text{'} \\
\text{SUBJ} & \boxed{1}\begin{bmatrix} \text{PRED} & \text{'PROFESSION\_VET'} \end{bmatrix} \\
\text{XC-P} & \boxed{2}\begin{bmatrix} \text{PRED} & \text{'PROFESSION<}\boxed{1}\text{>'} \\ \text{SUBJ} & \boxed{1} \\ \text{ADJ} & \left\{ \begin{bmatrix} \text{PRED} & \text{'SUCH'} \end{bmatrix} \right\} \end{bmatrix} \\
\text{ADJ} & \left\{ \begin{bmatrix} \text{PRED} & \text{'SINCE<}\boxed{3}\text{>'} \\ \text{COMP} & \boxed{3}\begin{bmatrix} \text{PRED} & \text{'BE<}\boxed{5}\text{>}\boxed{4}\text{'} \\ \text{SUBJ} & \boxed{4}\begin{bmatrix} \text{PRED} & \text{'PROTECTION'} \end{bmatrix} \\ \text{XC-P} & \boxed{5}\begin{bmatrix} \text{PRED} & \text{'DUTY<}\boxed{4}\text{>'} \\ \text{SUBJ} & \boxed{4} \\ \text{ADJ} & \left\{ \begin{bmatrix} \text{PRED} & \text{'MAIN'} \end{bmatrix}, \begin{bmatrix} \text{PRED} & \text{'HIS'} \end{bmatrix} \right\} \end{bmatrix} \end{bmatrix} \end{bmatrix} \right\}
\end{bmatrix}
$$

1.3 Word order, non-incorporating use

Though the incorporating conjunctions in (5) and (7) follow the first word of the
relevant clause, structural distance is greater – the conjunction follows an adjunct
of an argument (object or predicative complement, respectively) of the main verb
of the coordinate or subordinate clause, respectively. See f-structures in (6) and (8).

While it is sometimes advised to put the incorporating conjunction after the first
word of the relevant clause, it may be far more distant both in terms of linear order
(number of words) as well as syntactic distance (number of spanned dependents)
– as it will be shown in examples to follow, incorporating conjunctions may be
embedded deep inside the clause, inside almost any of its dependents.

Finally, though there are prescriptive rules claiming that conjunctions such as
zaś (coordinating) and *bowiem* (subordinating) are obligatorily incorporating (they

must occur in the non-standard position: non-initially),[2] corpus data shows that these are no longer valid. There are numerous non-incorporating instances of conjunctions discussed here, many of which occur in edited texts such as newspapers:

(9) {[Padało   na północy i   wschodzie], zaś [susza   dotknęła
      rained.3.SG.N at north   and east   but drought.NOM affected.3.SG.F
      przede wszystkim Polskę   południową]}.
      mostly   Poland.ACC southern.ACC
      'It mainly rained in the north and in the east, while the drought mostly affected
      southern Poland.' (NKJP)

(10) [W tym roku to   wyjątkowo dobre   trafienie, [bowiem [wzrasta
      in this year this particularly good.NOM hit.NOM   because grow.3.SG
      popyt   na margaryny i   oleje]]].
      demand.NOM on margarine and oils
      'This year it was a particularly good choice, because the demand on margarine
      and oils is growing.' (NKJP)

It seems that such prescriptive rules change over time into stylistic suggestions which strongly advise the use of incorporation (as an indication of a careful writing style), but no longer consider the non-incorporating use to be unacceptable.

The existence of such variation in how conjunctions are used provides additional motivation for adopting a consistent, unified f-structure representation of both uses – in spite of the difference at the level of c-structure (caused by the presence or absence of incorporation), the interpretation of relevant utterances remains the same.

2   More data: distance

This section shows examples focusing on distance (linear and structural) between the incorporating conjunction and the position in which it is normally expected.

2.1   Coordination

In (11) two clauses are coordinated: the first conjunct is headed by UZYSKAĆ 'achieve', the head of the second conjunct is WYRAZIĆ 'express'. The coordinating conjunction *zaś* is incorporating: it is placed inside the second conjunct, it follows its third word – the verb *wyraziły* 'expressed', which is preceded by its subject, *władze sowieckie* 'Soviet authorities', so the linear distance is two phrases. See the corresponding f-structure in (12).

(11) {[Uzyskał   zwolnienie wszystkich zakładników], [władze
      achieved.3.SG.M release.ACC all.GEN   hostages.GEN   authorities.NOM
      sowieckie [wyraziły]I   zaś zgodę   na ich powrót]}.
      Soviet.NOM expressed.3.PL.F but consent.ACC on their return
      'He achieved the release of all hostages, whereas the Soviet authorities agreed
      to their return.' (NKJP)

(12)

$$
\left[\begin{array}{l}
\left\{\begin{array}{l}
\left[\begin{array}{ll}
\text{PRED} & \text{'ACHIEVE<[1],[2]>'} \\
\text{SUBJ} & \text{[1]}\left[\text{PRED} \quad \text{'PRO'}\right] \\
\text{OBJ} & \text{[2]}\left[\text{PRED} \quad \text{'RELEASE\dots'}\right]
\end{array}\right],
\left[\begin{array}{ll}
\text{PRED} & \text{'EXPRESS<[3],[4]>'} \\
\text{SUBJ} & \text{[3]}\left[\begin{array}{ll}\text{PRED} & \text{'AUTHORITY'} \\ \text{ADJ} & \left\{\left[\text{PRED} \quad \text{'SOVIET'}\right]\right\}\end{array}\right] \\
\text{OBJ} & \text{[4]}\left[\text{PRED} \quad \text{'CONSENT\dots'}\right]
\end{array}\right]
\end{array}\right\} \\
\text{COORD-FORM} \quad \text{BUT}
\end{array}\right]
$$
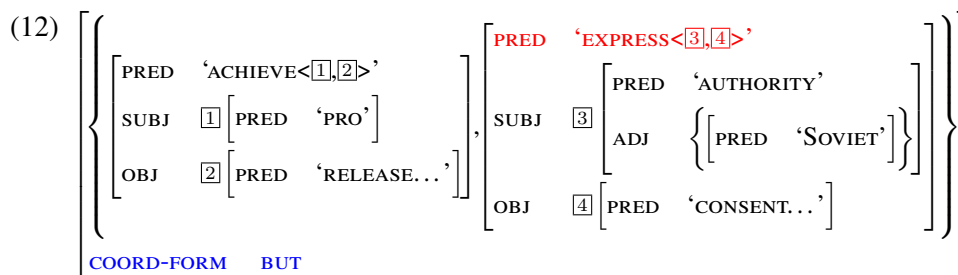
There are also 3 words before the coordinating conjunction *natomiast* 'but' in (13), but it is embedded deeper inside the second conjunct, so the structural distance is greater: *natomiast* follows *ich* 'them', the object (OBJ) of *wyszukiwać* 'seek', the infinitival complement (XCOMP) of *trzeba* 'need', the head of the second conjunct, which is preceded by negation (*nie*). See the f-structure in (14).
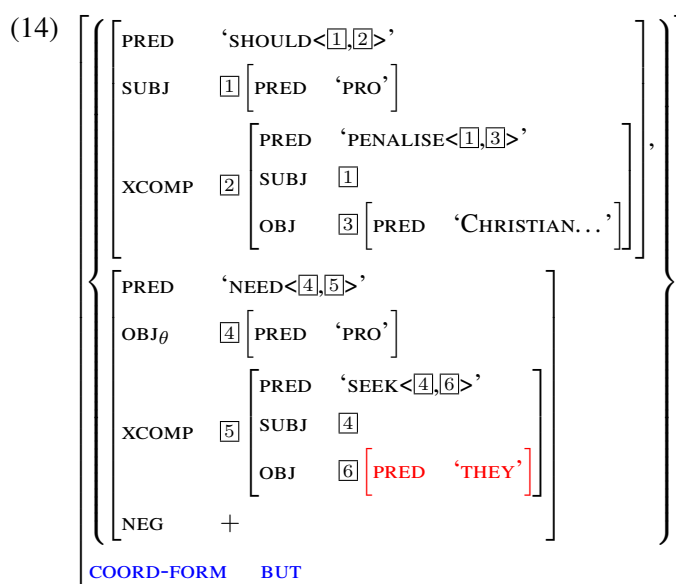
(13) {[Należy karać   tych   chrześcijan, którzy   są   oskarżeni
        should penalise.INF those.ACC Christians.ACC who.NOM are accused.NOM

przed władzą], [nie trzeba [[ich]_NP   natomiast wyszukiwać]]}.
before authority NEG need them.GEN but   seek.INF

'We should penalise those Christians who were accused by the authorities, but we do not need to search for them.' (NKJP)

(14)

$$
\left[\begin{array}{l}
\left\{\begin{array}{l}
\left[\begin{array}{ll}
\text{PRED} & \text{'SHOULD<[1],[2]>'} \\
\text{SUBJ} & \text{[1]}\left[\text{PRED} \quad \text{'PRO'}\right] \\
\text{XCOMP} & \text{[2]}\left[\begin{array}{ll}\text{PRED} & \text{'PENALISE<[1],[3]>'} \\ \text{SUBJ} & \text{[1]} \\ \text{OBJ} & \text{[3]}\left[\text{PRED} \quad \text{'CHRISTIAN\dots'}\right]\end{array}\right]
\end{array}\right], \\
\left[\begin{array}{ll}
\text{PRED} & \text{'NEED<[4],[5]>'} \\
\text{OBJ}_\theta & \text{[4]}\left[\text{PRED} \quad \text{'PRO'}\right] \\
\text{XCOMP} & \text{[5]}\left[\begin{array}{ll}\text{PRED} & \text{'SEEK<[4],[6]>'} \\ \text{SUBJ} & \text{[4]} \\ \text{OBJ} & \text{[6]}\left[\text{PRED} \quad \text{'THEY'}\right]\end{array}\right] \\
\text{NEG} & +
\end{array}\right]
\end{array}\right\} \\
\text{COORD-FORM} \quad \text{BUT}
\end{array}\right]
$$

2.2 Subordination

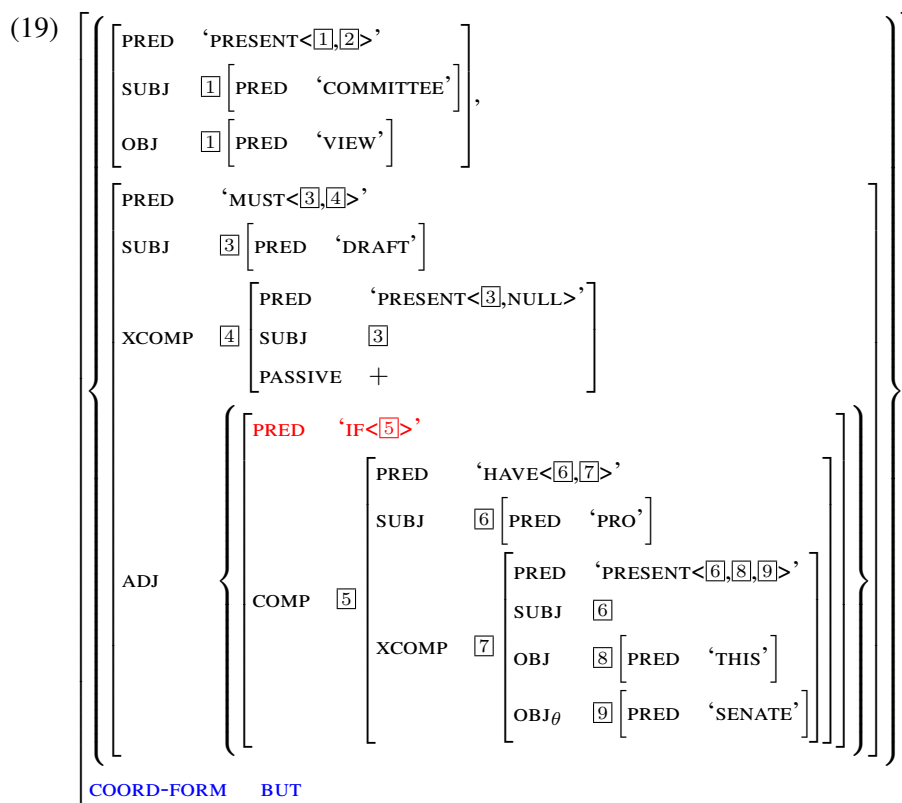In (15) the incorporating subordinating conjunction (complementiser) *bowiem* 'since' is preceded by 4 words: the adjunct PP (*od dawna* 'long'), the main verb of the subordinate clause (*był* 'was') and its subject (*on* 'he'), which it follows – the linear distance is therefore 3 phrases. While the linear distance in (16) is just two words, the structural distance is greater – *bowiem* is embedded inside the first

phrase of the subordinate clause. It follows *wielu* 'many' – the numeral object of the preposition *w* 'in' which heads the adjunct prepositional phrase modifying *jest* 'is', which is in turn the head of the subordinate clause introduced by *bowiem*. It is worth noting that *bowiem* splits the numeral phrase: it separates its numeral head (*wielu*) from its nominal object (*wypadkach* 'cases'). See the f-structure in (17).

(15) [Biskup   uważał   ich   ciągle za swoich podwładnych,
     bishop.NOM considered.3.SG.M them.ACC still   for SELF subordinate
    [od   dawna był   [on]NP bowiem zwierzchnikiem szkół]].
     from   long   was.3.SG.M he.NOM since   head.INST   schools.GEN
    'The bishop still considered them to be his subordinates, since he has long been the head of schools.' (NKJP)

(16) [Zrealizowanie zamierzenia spowoduje ogromne uciążliwości   [. . .],
     realising.NOM plan.GEN   cause.3.SG great.ACC inconveniences.ACC
    [[[w]P [[wielu]NUM bowiem [wypadkach]NP]NUMP]PP kolej   jest
     in   many   since cases   railway.NOM is
    jedynym środkiem   lokomocji]].
    only.INST means.INST transport
    'Realising this plan will cause great inconvenience, since in many cases the rail is the only means of transport.' (NKJP)

(17) f-structure:

$$
\begin{bmatrix}
\text{PRED} & \text{`CAUSE<\boxed{1},\boxed{2}>'} \\
\text{SUBJ} & \boxed{1}\begin{bmatrix}\text{PRED} & \text{`REALISING\_PLAN'}\end{bmatrix} \\
\text{OBJ} & \boxed{2}\begin{bmatrix}\text{PRED} & \text{`INCONVENIENCE'} \\ \text{ADJ} & \left\{\begin{bmatrix}\text{PRED} & \text{`GREAT'}\end{bmatrix}\right\}\end{bmatrix} \\
\text{ADJ} & \left\{\begin{bmatrix}\text{PRED} & \text{`SINCE<\boxed{3}>'} \\ \text{COMP} & \boxed{3}\begin{bmatrix}\text{PRED} & \text{`BE<\boxed{5}>\boxed{4}'} \\ \text{SUBJ} & \boxed{4}\begin{bmatrix}\text{PRED} & \text{`RAILWAY'}\end{bmatrix} \\ \text{XC-P} & \boxed{5}\begin{bmatrix}\text{PRED} & \text{`MEANS\_TRANSPORT<\boxed{4}>'} \\ \text{SUBJ} & \boxed{4} \\ \text{ADJ} & \left\{\begin{bmatrix}\text{PRED} & \text{`ONLY'}\end{bmatrix}\right\}\end{bmatrix} \\ \text{ADJ} & \left\{\begin{bmatrix}\text{PRED} & \text{`IN<\boxed{6}>'} \\ \text{OBJ} & \boxed{6}\begin{bmatrix}\text{PRED} & \text{`MANY<\boxed{7}>'} \\ \text{OBJ} & \boxed{7}\begin{bmatrix}\text{PRED} & \text{`CASE'}\end{bmatrix}\end{bmatrix}\end{bmatrix}\right\}\end{bmatrix}\end{bmatrix}\right\}
\end{bmatrix}
$$

3 Complex data and interactions

3.1 Coordinating conjunction inside second conjunct's CP adjunct

In (18) the incorporating coordinating conjunction *natomiast* 'but', which joins sentences headed by verbs *przedstawiła* 'presented' and *musi* 'must', is placed inside the subordinate clause introduced by the complementiser *jeśli* 'if', an adjunct of *musi* – the head of the second conjunct. See the f-structure in (19).

(18) {[Komisja   przedstawiła   swoje   stanowisko], [[[jeśli]COMP
        committee.NOM presented.3.SG.F its.ACC   view.ACC   if
     natomiast [mamy   to   przedstawić Senatowi]], musi   zostać
     but   have.1.PL this.ACC present.INF senate.DAT must.3.SG be.INF
     zaprezentowany projekt   uchwały]]}.
     presented.NOM   draft.NOM resolution.GEN
     'The commitee has presented its view, but, if we are to present it to the
     senate, the draft of the resolution must be presented.' (NKJP)

(19)
$$
\begin{bmatrix}
\left\{
\begin{array}{l}
\begin{bmatrix}
\text{PRED} & \text{'PRESENT<}\boxed{1},\boxed{2}\text{>'} \\
\text{SUBJ} & \boxed{1}\begin{bmatrix}\text{PRED} & \text{'COMMITTEE'}\end{bmatrix}, \\
\text{OBJ} & \boxed{1}\begin{bmatrix}\text{PRED} & \text{'VIEW'}\end{bmatrix}
\end{bmatrix} \\[3em]
\begin{bmatrix}
\text{PRED} & \text{'MUST<}\boxed{3},\boxed{4}\text{>'} \\
\text{SUBJ} & \boxed{3}\begin{bmatrix}\text{PRED} & \text{'DRAFT'}\end{bmatrix} \\
\text{XCOMP} & \boxed{4}\begin{bmatrix}\text{PRED} & \text{'PRESENT<}\boxed{3},\text{NULL}\text{>'} \\ \text{SUBJ} & \boxed{3} \\ \text{PASSIVE} & + \end{bmatrix} \\
\text{ADJ} & \left\{\begin{bmatrix}\text{PRED} & \text{'IF<}\boxed{5}\text{>'} \\ \text{COMP} & \boxed{5}\begin{bmatrix}\text{PRED} & \text{'HAVE<}\boxed{6},\boxed{7}\text{>'} \\ \text{SUBJ} & \boxed{6}\begin{bmatrix}\text{PRED}&\text{'PRO'}\end{bmatrix} \\ \text{XCOMP} & \boxed{7}\begin{bmatrix}\text{PRED}&\text{'PRESENT<}\boxed{6},\boxed{8},\boxed{9}\text{>'}\\ \text{SUBJ}&\boxed{6}\\ \text{OBJ}&\boxed{8}\begin{bmatrix}\text{PRED}&\text{'THIS'}\end{bmatrix}\\ \text{OBJ}_\theta&\boxed{9}\begin{bmatrix}\text{PRED}&\text{'SENATE'}\end{bmatrix}\end{bmatrix}\end{bmatrix}\end{bmatrix}\right\}
\end{bmatrix}
\end{array}
\right\} \\
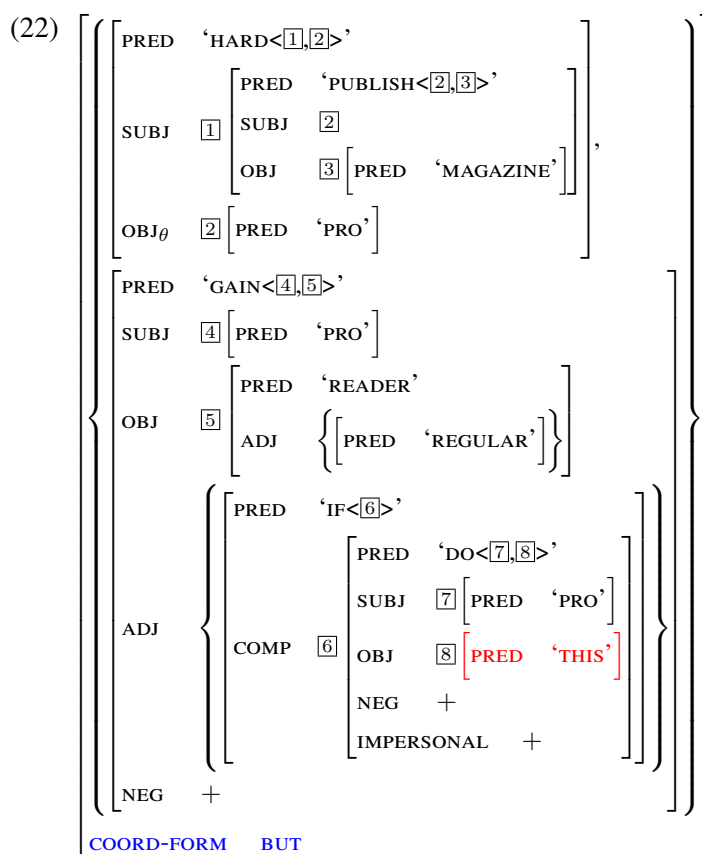\text{COORD-FORM} \quad \text{BUT}
\end{bmatrix}
$$

(18) would also be grammatical if *jeśli* and *natomiast* were not adjacent (e.g.: *jeśli mamy to natomiast*, with the verb and the object of its infinitival complement between them), which shows that *jeśli natomiast* in (18) is not a multiword unit.

In (20) the incorporating coordinating conjunction *zaś* 'but' joining sentences headed by *trudno* 'hard' and *zdobywa* 'gain' is placed inside the adjunct subordinate

clause introduced by the complementiser *jeśli* 'if', which modifies *zdobywa* 'gain' – the head of the second conjunct. The two conjunctions, subordinating (*jeśli*) and coordinating (*zaś*), are separated by the impersonal marker *się* – a dependent of *czyni* 'do' (the main predicate of the subordinate clause introduced by *jeśli*). In (20) *zaś* could also follow *tego* 'this', the object of *czyni*: *jeśli się tego zaś nie czyni*, as in (21) – the f-structure in (22) corresponds to this possibility.

(20) {[Trudno wydawać pismo w regularnych odstępach czasu], [[jeśli
hard publish.INF magazine.ACC in regular intervals time if
[[się]PART zaś tego nie czyni]], nie zdobywa się stałego odbiorcy]}.
REFL but this.GEN NEG do.3.SG NEG gain.3.SG REFL regular reader.GEN
'It is hard to publish the magazine in regular intervals, but, if you do not do this, you do not gain regular readers.' (NKJP)

(21) {[Trudno wydawać pismo w regularnych odstępach czasu], [[jeśli [się
[tego]NP zaś nie czyni]], nie zdobywa się stałego odbiorcy]}.

(22)

$$
\left[
\begin{array}{l}
\left\{
\begin{array}{l}
\left[
\begin{array}{ll}
\text{PRED} & \text{'HARD<\boxed{1},\boxed{2}>'} \\
\text{SUBJ} \quad \boxed{1} &
\left[
\begin{array}{ll}
\text{PRED} & \text{'PUBLISH<\boxed{2},\boxed{3}>'} \\
\text{SUBJ} & \boxed{2} \\
\text{OBJ} & \boxed{3}\,[\text{PRED} \quad \text{'MAGAZINE'}]
\end{array}
\right] \\
\text{OBJ}_\theta \quad \boxed{2}\,[\text{PRED} \quad \text{'PRO'}]
\end{array}
\right], \\[6pt]
\left[
\begin{array}{ll}
\text{PRED} & \text{'GAIN<\boxed{4},\boxed{5}>'} \\
\text{SUBJ} & \boxed{4}\,[\text{PRED} \quad \text{'PRO'}] \\
\text{OBJ} \quad \boxed{5} &
\left[
\begin{array}{ll}
\text{PRED} & \text{'READER'} \\
\text{ADJ} & \{[\text{PRED} \quad \text{'REGULAR'}]\}
\end{array}
\right] \\
\text{ADJ} &
\left\{
\left[
\begin{array}{ll}
\text{PRED} & \text{'IF<\boxed{6}>'} \\
\text{COMP} \quad \boxed{6} &
\left[
\begin{array}{ll}
\text{PRED} & \text{'DO<\boxed{7},\boxed{8}>'} \\
\text{SUBJ} & \boxed{7}\,[\text{PRED} \quad \text{'PRO'}] \\
\text{OBJ} & \boxed{8}\,[\text{PRED} \quad \text{'THIS'}] \\
\text{NEG} & + \\
\text{IMPERSONAL} & +
\end{array}
\right]
\end{array}
\right]
\right\} \\
\text{NEG} & +
\end{array}
\right]
\end{array}
\right\} \\
\text{COORD-FORM} \quad \text{BUT}
\end{array}
\right]
$$

3.2 Subordinating conjunction inside coordinate phrase

This section discusses examples where the subordinating conjunction is contained in a coordinate phrase which is one of the dependents of the subordinate clause.

In a sense, this can be seen as the opposite of the configuration presented in §3.1, where the coordinating conjunction was placed inside the adjunct subordinate clause which in turn was a dependent of the second conjunct.

In (23) the subordinating conjunction *bowiem* 'since' follows *zarówno* 'both'– a preconjunction which is a part of the coordinate adjunct phrase which consists of two prepositional phrases: *w spółdzielniach mieszkaniowych* 'in housing associations' and *w kwaterunkach* 'in council housing', joined by the conjunction *jak i* 'and'. This coordinated PP is a modifier of *rośnie* 'grows' — the main predicate of the subordinate clause introduced by *bowiem*. Though the main verb is elided in (23), the corresponding f-structure in (24) represents it explicitly as EVICT – it can be recovered from context (the preceding sentence).[3]

(23) {A   [byłoby   kogo,   [{[zarówno]PRECONJ   bowiem   [w
      and   would be   who.ACC   both   since   in
      spółdzielniach mieszkaniowych]PP,   [jak i]CONJ   [w   kwaterunkach]PP}
      housing associations   and   in   council housing
      rośnie   zadłużenie lokatorów]]}.
      grow.3.SG debt.NOM   tenants.GEN
      'And there would be who [to evict], since the tenants' debt is growing both in housing associations and in council housing.' (NKJP)

(24)
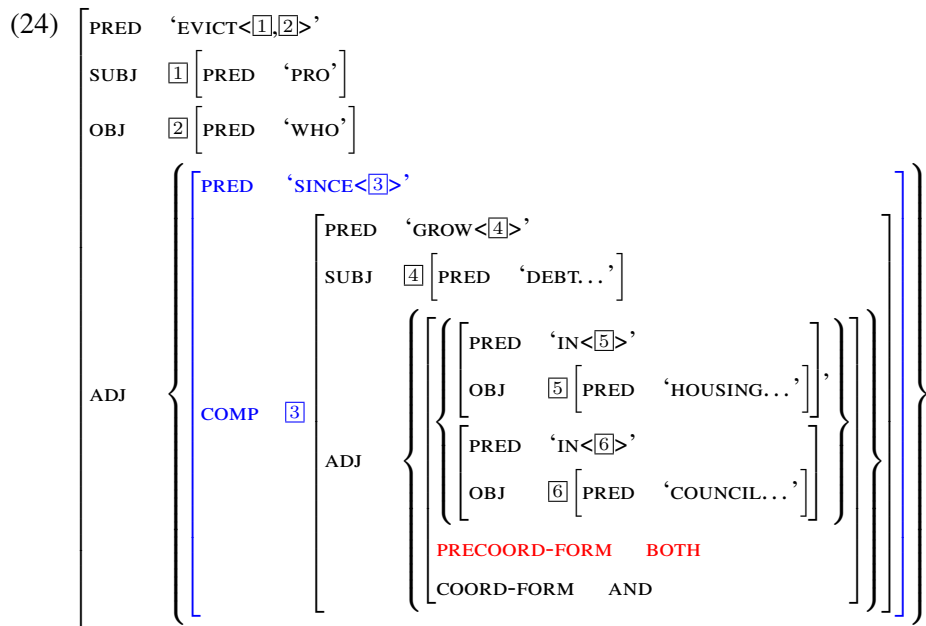
(25) is similar to (23) in that the subordinating conjunction (*bowiem*) follows a preconjunction (*nie tylko* 'not only'), but the path to the grammatical function of the coordinate phrase in which *bowiem* is embedded is different. While in (23) the coordinate phrase corresponds to an adjunct of the subordinate clause, in (25) the coordinate phrase corresponds to the main predicate(s) of the subordinate clause. Apart

---

[3]Though (23) is a sentence starting with a conjunction (see §3.4), it is not represented in (24).

from the opening preconjunction, it consists of two verbal phrases, *będę mówił o sobie bez wstydu* 'I will speak about myself without shame' and *będę się chełpił swoją formą fizyczną* 'I will boast about my physical fitness', joined by the conjunction *ale* 'but (also)'. See the corresponding simplified f-structure in (26).

(25) [Tutaj popełnię podwójny grzech, [{ [nie tylko]_PRECONJ bowiem
here commit.1.SG double.ACC sin.ACC not only since
[będę mówił o sobie bez wstydu]_IP, [ale]_CONJ [będę się
will.1.SG speak about myself without shame but will.1.SG REFL
chełpił swoją formą fizyczną]_IP }]].
boast own form.INST physical
'I will commit a double sin, since not only will I speak about myself without shame, but also I will boast about my physical fitness.' (NKJP)

(26)

$$
\begin{bmatrix}
\text{PRED} & \text{'COMMIT}\langle\boxed{1},\boxed{2}\rangle\text{'} \\
\text{SUBJ} & \boxed{1}\begin{bmatrix}\text{PRED} & \text{'PRO'}\end{bmatrix} \\
\text{OBJ} & \boxed{2}\begin{bmatrix}\text{PRED} & \text{'SIN'} \\ \text{ADJ} & \left\{\begin{bmatrix}\text{PRED} & \text{'DOUBLE'}\end{bmatrix}\right\}\end{bmatrix} \\
\text{ADJ} & \left\{\begin{bmatrix}
\text{PRED} & \text{'SINCE}\langle\boxed{3}\rangle\text{'} \\
\text{COMP} & \boxed{3}\left\{\begin{bmatrix}
\text{PRED} & \text{'SPEAK}\langle\boxed{4},\boxed{5}\rangle\text{'} \\
\text{SUBJ} & \boxed{4}\begin{bmatrix}\text{PRED} & \text{'PRO'}\end{bmatrix} \\
\text{OBL} & \boxed{5}\begin{bmatrix}\text{PRED} & \text{'SELF'} \\ \text{PFORM} & \text{ABOUT}\end{bmatrix} \\
\text{ADJ} & \left\{\begin{bmatrix}\text{PRED} & \text{'WITHOUT\_SHAME'}\end{bmatrix}\right\}
\end{bmatrix},
\begin{bmatrix}
\text{PRED} & \text{'BOAST}\langle\boxed{4},\boxed{6}\rangle\text{'} \\
\text{SUBJ} & \boxed{4} \\
\text{OBJ} & \boxed{6}\begin{bmatrix}\text{PRED} & \text{'FITNESS'} \\ \text{ADJ} & \left\{\begin{bmatrix}\text{PRED} & \text{'OWN'}\end{bmatrix}\right\}\end{bmatrix}
\end{bmatrix}\right\} \\
\text{PRECOORD-FORM} & \text{NOT\_ONLY} \\
\text{COORD-FORM} & \text{BUT\_ALSO}
\end{bmatrix}\right\}
\end{bmatrix}
$$

3.3 Gapping

Incorporating conjunctions also occur with gapping – a special type of coordination where the predicate of the second conjunct is elided. In such examples – rather than between the conjuncts – the conjunction joining clauses is placed inside the gapped conjunct (typically the second conjunct). The f-structure representations provided below follow the analysis of gapping offered in Patejuk and Przepiórkowski 2017,

which accounts for differences in agreement features, independent structural case assignment and unlike category coordination.
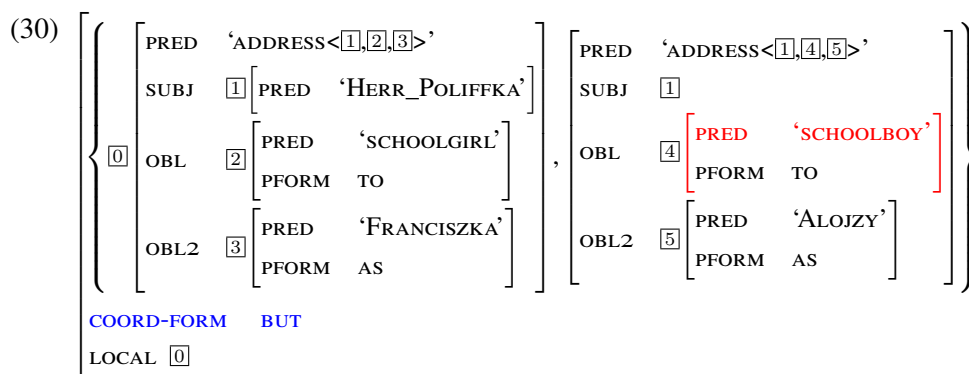
In (27) the coordinating conjunction *zaś* follows *ona* 'she' which is the subject of the gapped second conjunct (which would be a form of MIEĆ 'have'), see (28):

(27) {[W chwili ich   poznania miał   lat   20],   [[ona]NP zaś 36]}.
     in time   they.GEN meeting had.3.SG.M years 20.ACC she.NOM but 36.ACC
     'At the time of meeting them he was 20, and she (was) 36.' (NKJP)

(28)
$$
\left[\left\{\left[\begin{array}{l}
\boxed{0}\begin{bmatrix}
\text{PRED} & \text{'HAVE<}\boxed{1},\boxed{2}\text{>'} \\
\text{SUBJ} & \boxed{1}[\text{PRED} \quad \text{'PRO'}] \\
\text{OBJ} & \boxed{2}\begin{bmatrix}\text{PRED} & \text{'20<}\boxed{3}\text{>'} \\ \text{OBJ} & \boxed{3}[\text{PRED} \quad \text{'YEAR'}]\end{bmatrix}
\end{bmatrix} \\[2em]
\text{COORD-FORM} \quad \text{BUT} \\
\text{LOCAL} \quad \boxed{0}
\end{array}\right., \begin{bmatrix}
\text{PRED} & \text{'HAVE<}\boxed{4},\boxed{5}\text{>'} \\
\text{SUBJ} & \boxed{4}[\text{PRED} \quad \text{'SHE'}] \\
\text{OBJ} & \boxed{4}[\text{PRED} \quad \text{'36'}]
\end{bmatrix}\right\}\right]
$$
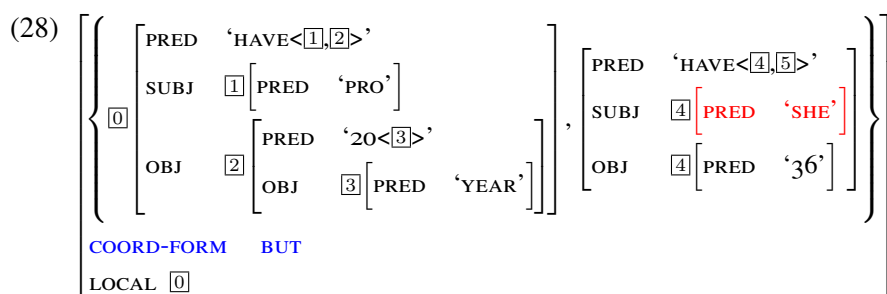
In (29) the coordinating conjunction *natomiast* follows *ucznia* 'schoolboy', which is the head of the oblique complement (OBL) of the gapped clause, see (30):[4]

(29) {[Do każdej uczennicy Herr   Poliffka   zwracał   się per
     to every.F schoolgirl Herr.NOM Poliffka.NOM addressed.3.SG.M REFL as
     "Franciszka"], [[[do]P [[każdego]AP [ucznia]NP natomiast]]PP per "Alojzy"]}.
     Franciszka.F to   every.M   schoolboy but   as Alojzy.M
     'Herr Poliffka addressed every schoolgirl as "Franciszka" and every school-
     boy as "Alojzy".' (NKJP)

(30)
$$
\left[\left\{\left[\begin{array}{l}
\boxed{0}\begin{bmatrix}
\text{PRED} & \text{'ADDRESS<}\boxed{1},\boxed{2},\boxed{3}\text{>'} \\
\text{SUBJ} & \boxed{1}[\text{PRED} \quad \text{'HERR\_POLIFFKA'}] \\
\text{OBL} & \boxed{2}\begin{bmatrix}\text{PRED} & \text{'SCHOOLGIRL'} \\ \text{PFORM} & \text{TO}\end{bmatrix} \\
\text{OBL2} & \boxed{3}\begin{bmatrix}\text{PRED} & \text{'FRANCISZKA'} \\ \text{PFORM} & \text{AS}\end{bmatrix}
\end{bmatrix} \\[2em]
\text{COORD-FORM} \quad \text{BUT} \\
\text{LOCAL} \quad \boxed{0}
\end{array}\right., \begin{bmatrix}
\text{PRED} & \text{'ADDRESS<}\boxed{1},\boxed{4},\boxed{5}\text{>'} \\
\text{SUBJ} & \boxed{1} \\
\text{OBL} & \boxed{4}\begin{bmatrix}\text{PRED} & \text{'SCHOOLBOY'} \\ \text{PFORM} & \text{TO}\end{bmatrix} \\
\text{OBL2} & \boxed{5}\begin{bmatrix}\text{PRED} & \text{'ALOJZY'} \\ \text{PFORM} & \text{AS}\end{bmatrix}
\end{bmatrix}\right\}\right]
$$

---

[4]Though OBL2 is used in (30) as the grammatical function corresponding to PPs with *per* 'as', it should perhaps be a manner oblique (OBL-MOD). As shown below, a manner adverb (*normalnie* 'normally') can be coordinated with a PP consisting of *per* and a nominative/vocative nominal:

(i) Zwracali   się do niego {[normalnie], [per "pan"]}.
    addressed.3.PL.M REFL to him   normally   as sir.NOM
    'They addressed him normally, as "sir".' (NKJP)

Still, the grammatical functions in (30) have no bearing on general points made in this paper.

3.4 In stand-alone clauses

Though many people are taught that they should never start a sentence with a conjunction, this is not considered a rule by authoritative sources such as Poradnia językowa PWN,[5] whose stance is supported by corpus data which abounds in examples starting with a conjunction, many of which come from edited sources.

(31) {Ale [myślicie   prawidłowo]}.
    but   think.2.PL correctly
    'But your thinking is right.' (NKJP)

(32) [Że [istnieje   Europa]]!
    that exist.3.SG Europe.NOM
    'That Europe exists!' (NKJP)

(33) [Jeśli [nie liczyć   coraz mniejszej ilości   włosów]].
    if   NEG count.INF ever   smaller.GEN amount.GEN hair.GEN
    'If you do not consider the ever smaller amount of hair.' (NKJP)

(31) starts with the coordinating conjunction *ale* 'but', followed by the stranded second conjunct. (32)–(33) begin with the subordinating conjunction (complementiser): *że* 'that' in (32) introduces an argument subordinate clause (subcategorised), while *jeśli* 'if' in (33) introduces an adjunct subordinate clause (not subcategorised).

Let us proceed to examples with incorporating conjunctions. In (34) the subordinating conjunction *bowiem* 'since' follows *będą* 'will' – the copula heading the stand-alone subordinate clause introduced by *bowiem*. See the f-structure in (35).

(34) [Przelewy   z   unijnej kasy   nie [będą]ᵢ bowiem automatyczne].
    transfers.NOM from EU   cash box NEG will.3.PL since   automatic.NOM
    'Since transfers of EU money will not be automatic.' (NKJP)

(35)
$$
\begin{bmatrix}
\text{PRED} & \text{'SINCE<}\boxed{1}\text{>'} \\
\text{COMP} \quad \boxed{1} &
\begin{bmatrix}
\text{PRED} & \text{'BE<}\boxed{3}\text{>}\boxed{2}\text{'} \\
\text{SUBJ} \quad \boxed{2} & \begin{bmatrix}\text{PRED} & \text{'TRANSFER'}\end{bmatrix} \\
\text{XC-P} \quad \boxed{3} & \begin{bmatrix}\text{PRED} & \text{'AUTOMATIC<}\boxed{2}\text{>'} \\ \text{SUBJ} & \boxed{2}\end{bmatrix} \\
\text{NEG} & +
\end{bmatrix}
\end{bmatrix}
$$
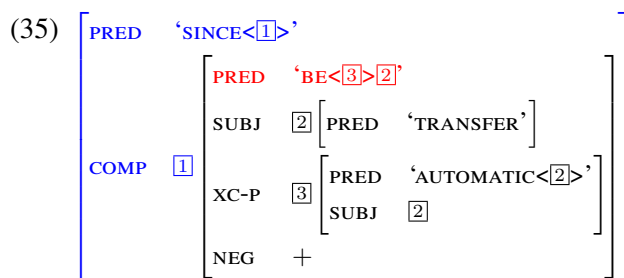
(36) is analogous to examples discussed in §3.1, where the incorporating coordinating conjunction joining two clauses is placed inside the adjunct CP modifying the second conjunct. However, the first conjunct is not present in (36) – the coordinating conjunction *zaś* 'but' follows the subordinating conjunction (complementiser) *gdy* 'when', which introduces the subordinate clause modifying the verb *miał* 'had', which is the head of the stranded second conjunct. See the f-structure in (37).

---

[5]https://sjp.pwn.pl/poradnia/haslo/spojnik-na-poczatku-zdania;2374.html: "There is, however, no rule that would ban using a conjunction at the beginning of a sentence." ("Nie ma jednak reguły, która zabraniałaby użycia spójnika na początku zdania.").
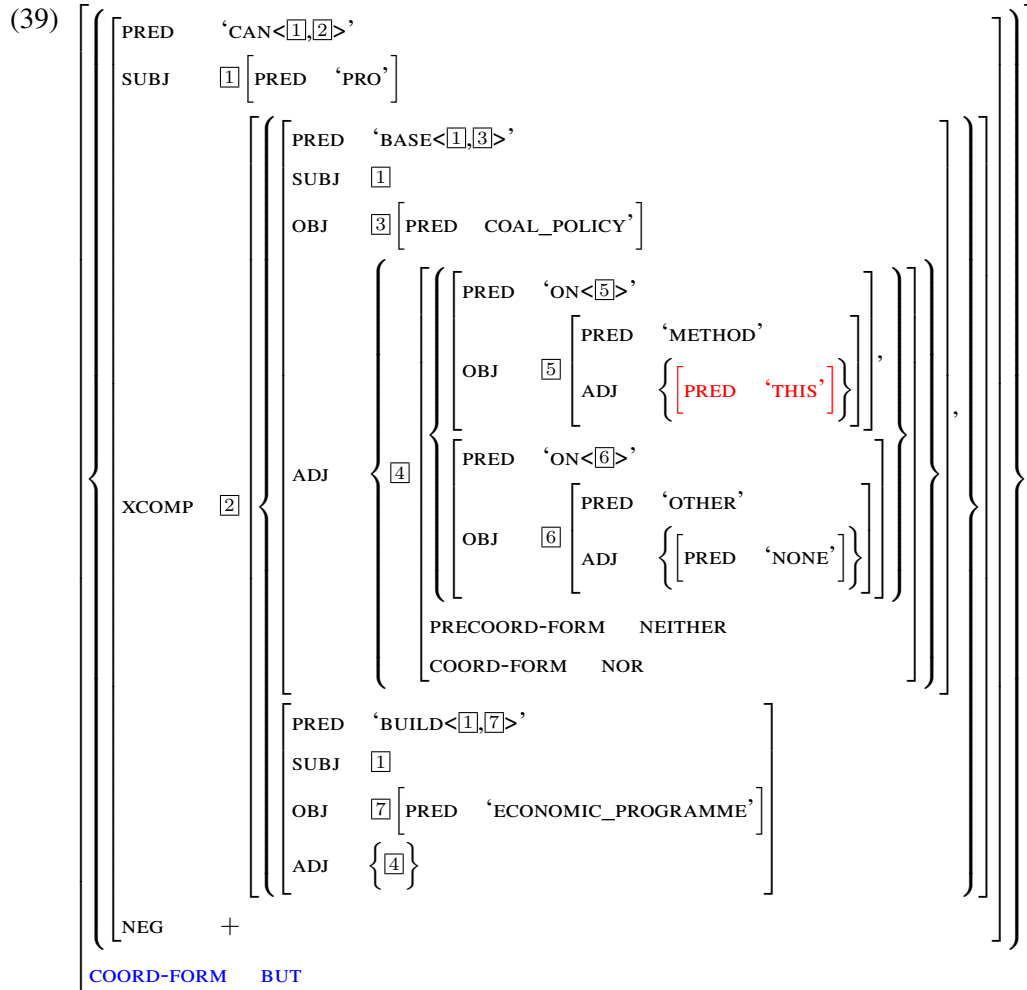
(36) {[[[Gdy]COMP zaś [podniósł   nań   oczy]],   tamten   miał
        when   but raised.3.SG.M on him eyes.ACC that one.NOM had.3.SG.M
     minę   poważną   i   przyzwoicie skupioną]}.
     face expression.ACC serious.ACC and decently   focused.ACC
     'But when he raised his eyes on him (== he looked at him), that one's face
     expression was serious and decently focused.' (NKJP)

(37)
$$
\left[\begin{array}{l}
\left\{
\begin{array}{l}
\left[\begin{array}{ll}
\text{PRED} & \text{'HAVE<}\boxed{1},\boxed{2}\text{>'} \\
\text{SUBJ} & \boxed{1}\left[\text{PRED} \quad \text{'THAT\_ONE'}\right] \\
\text{OBJ} & \boxed{2}\left[\begin{array}{ll}
\text{PRED} & \text{'FACE\_EXPRESSION'} \\
\text{ADJ} & \left\{\left[\left\{\begin{array}{l}
\left[\text{PRED} \quad \text{'SERIOUS'}\right], \\
\left[\begin{array}{ll}\text{PRED} & \text{'FOCUSED'} \\ \text{ADJ} & \left\{\left[\text{PRED} \quad \text{'DECENTLY'}\right]\right\}\end{array}\right]
\end{array}\right]\right\}\right] \\
\text{COORD-FORM} & \text{AND}
\end{array}\right]
\end{array}\right] \\
\\
\left[\begin{array}{ll}
\text{ADJ} & \left\{\left[\begin{array}{ll}
\text{PRED} & \text{'WHEN<}\boxed{3}\text{>'} \\
\text{COMP} & \boxed{3}\left[\begin{array}{ll}
\text{PRED} & \text{'RAISE<}\boxed{4},\boxed{5},\boxed{6}\text{>'} \\
\text{SUBJ} & \boxed{4}\left[\text{PRED} \quad \text{'PRO'}\right] \\
\text{OBJ} & \boxed{5}\left[\text{PRED} \quad \text{'EYE'}\right] \\
\text{OBL} & \boxed{6}\left[\begin{array}{ll}\text{PRED} & \text{'HE'} \\ \text{PFORM} & \text{ON}\end{array}\right]
\end{array}\right]
\end{array}\right]\right\}
\end{array}\right]
\end{array}\right\} \\
\text{COORD-FORM} \quad \text{BUT}
\end{array}\right]
$$
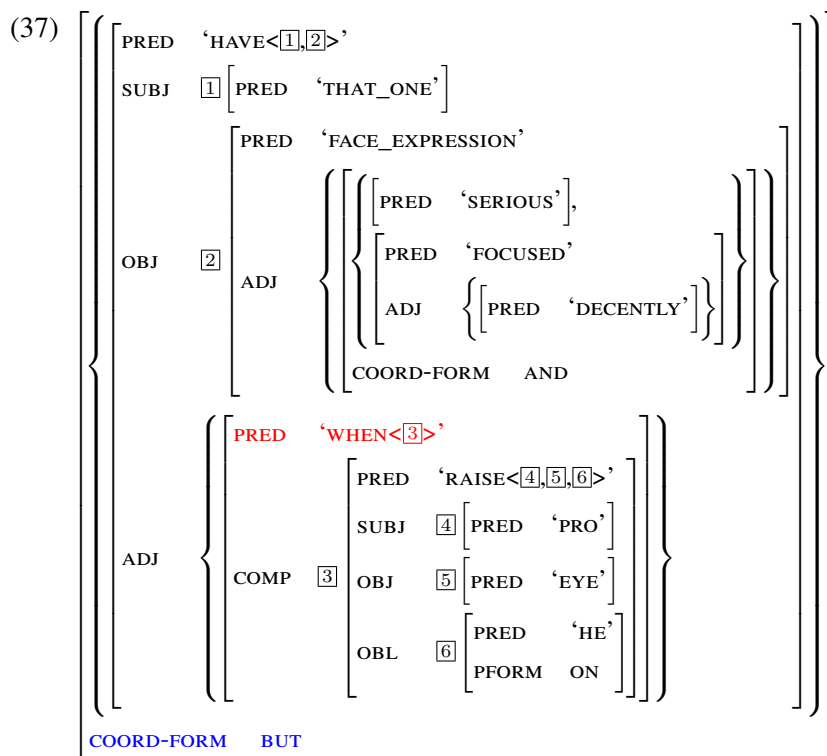
   While §3.2 discussed examples where an incorporating subordinating conjunc-
tion (complementiser) is placed inside a coordinate phrase which is a dependent of
the subordinate clause, in (38) the incorporating coordinating conjunction *zaś* 'but'
is put inside a coordinate phrase which is a dependent of the stranded second con-
junct. In (38) *zaś* follows *tej* 'this' – an adjectival modifier of *metodzie* 'method',
which is the nominal head of the first conjunct of a coordinate phrase consisting
of two prepositional phrases (*{[Na tej metodzie], ani [na żadnej innej]}*), which
is a shared oblique complement of coordinated verbs *opierać* 'base' and *budować*
'build' (each of which has its own, additional dependents), which are a complement
of the verb *można* 'can, may', which is the head of the stranded second conjunct
joined by *zaś*. See the corresponding f-structure in (39).

(38) {[{[[Na]P [[tej]AP zaś [metodzie]N]NP]PP, ani   [na żadnej innej]PP}
         on   this but method   neither on none   other
     [. . .] nie można opierać ani   polityki   węglowej, ani też budować
              NEG can   base.INF neither policy.GEN   coal.GEN   nor also build.INF

długofalowego programu   gospodarczego.]}
long-term.GEN programme.GEN economic.GEN
'But neither the coal policy, nor building a long-term economic programme can be based on this method, nor on any other.' (NKJP)

(39)

$$
\left[
\begin{array}{l}
\left\{
\begin{array}{l}
\left[
\begin{array}{ll}
\text{PRED} & \text{`CAN<}\boxed{1},\boxed{2}\text{>'} \\
\text{SUBJ} & \boxed{1}\left[\text{PRED} \quad \text{`PRO'}\right] \\
\text{XCOMP} & \boxed{2}\left\{
\begin{array}{l}
\left[
\begin{array}{ll}
\text{PRED} & \text{`BASE<}\boxed{1},\boxed{3}\text{>'} \\
\text{SUBJ} & \boxed{1} \\
\text{OBJ} & \boxed{3}\left[\text{PRED} \quad \text{COAL\_POLICY'}\right] \\
\text{ADJ} & \boxed{4}\left\{
\begin{array}{l}
\left[
\begin{array}{ll}
\text{PRED} & \text{`ON<}\boxed{5}\text{>'} \\
\text{OBJ} & \boxed{5}\left[
\begin{array}{ll}
\text{PRED} & \text{`METHOD'} \\
\text{ADJ} & \left\{\left[\text{PRED} \quad \text{`THIS'}\right]\right\}
\end{array}\right]
\end{array}\right], \\
\left[
\begin{array}{ll}
\text{PRED} & \text{`ON<}\boxed{6}\text{>'} \\
\text{OBJ} & \boxed{6}\left[
\begin{array}{ll}
\text{PRED} & \text{`OTHER'} \\
\text{ADJ} & \left\{\left[\text{PRED} \quad \text{`NONE'}\right]\right\}
\end{array}\right]
\end{array}\right] \\
\text{PRECOORD-FORM} \quad \text{NEITHER} \\
\text{COORD-FORM} \quad \text{NOR}
\end{array}\right\}
\end{array}\right] \\
\left[
\begin{array}{ll}
\text{PRED} & \text{`BUILD<}\boxed{1},\boxed{7}\text{>'} \\
\text{SUBJ} & \boxed{1} \\
\text{OBJ} & \boxed{7}\left[\text{PRED} \quad \text{`ECONOMIC\_PROGRAMME'}\right] \\
\text{ADJ} & \left\{\boxed{4}\right\}
\end{array}\right]
\end{array}\right\} \\
\text{NEG} \quad +
\end{array}\right] \\
\text{COORD-FORM} \quad \text{BUT}
\end{array}\right\}
\right], \cdots
$$

4 Analysis and formalisation

Since sentences with incorporating conjunctions (coordinating and subordinating) are interpreted in the same way as when incorporation is not involved, the proposed analysis assumes that while incorporating conjunctions are placed in a non-standard c-structure position (inside the item they join, rather than before it), the f-structure of utterances containing incorporating conjunctions is the same as when their non-incorporating counterparts are used. The proposed analysis relies exclusively on existing LFG formal devices – it does not require introducing any new mechanisms or modifications. It was implemented and verified in XLE (Crouch et al. 2011).

The analysis aims to capture two basic insights: first, that the incorporating conjunction is always non-initial, it always follows some category (see (40)) – it

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may be the first word of the joined phrase, coordinate or subordinate, but it may also be more distant both in terms of linear distance as well as structural distance. The second insight is that the incorporating conjunction builds its f-structure from its non-standard c-structure position – from inside the item which it joins (second conjunct or a subordinate clause), from inside the category which it immediately follows. As a result, while the c-structure position of incorporating conjunctions is non-standard, the resulting f-structure is fully parallel to f-structures with conjunctions occupying a standard position – following the way they are interpreted (as mentioned earlier, the difference between these two uses is purely stylistic).

Drawing on these insights, the basic idea behind the formal analysis of this phenomenon is to minimally affect the organisation of the rest of the grammar, putting the burden of producing the appropriate analysis on elements related to incorporating conjunctions. The minimal additions discussed in the following sections make it possible to account for this phenomenon without affecting the general grammar – using standard formal devices available in LFG, without making any changes to the formalism. This analysis can be seen as a simple overlay on the existing grammar.

4.1 METARULEMACRO

The first insight mentioned above, namely that incorporating conjunctions (coordinating and subordinating) always follow some other category, is formalised using the metarule mechanism described in the XLE documentation,[6] which seems to suit this purpose perfectly: "The METARULEMACRO is useful for expressing generalizations that operate across all the rules of the grammar, such as coordination, brackets, parentheses, and linear precedence." The XLE documentation (ibid.) defines METARULEMACRO as follows: "The effective right-hand side of each rule in the grammar is taken to be the result of applying that macro to three parameters: the mother category of that rule, the base name of the mother category (for the complex categories of parameterized rules), and the specified right-hand side of the rule." The relevant part of the METARULEMACRO used in the proposed analysis is provided in (40) – it has 3 parameters: CAT is the mother category, BASECAT is the base name of the mother category (not discussed here) and RHS is the right-hand side of the rule to which METARULEMACRO applies. The first disjunct of (40) is RHS – it ensures that every rule in the grammar trivially rewrites to itself, so it is not modified by METARULEMACRO. The last disjunct of (40) contains a call to the macro METARULEMACRO-INK defined in (41), which applies relevant changes.

(40) METARULEMACRO(CAT BASECAT RHS) $\equiv$
     { RHS | ... | @(METARULEMACRO-INK CAT) }

(41) METARULEMACRO-INK(CAT) $\equiv$ CAT { CONJINK | COMPINK }

CAT in (41) is a variable corresponding to any category defined in the grammar; it is followed by an incorporating conjunction, either coordinating (CONJINK) or subordinating (COMPINK). For example, when CAT is an NP, the output of (41) are two

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[6]http://ling.uni-konstanz.de/pages/xle/doc/notations.html#N3.5

rules: NP → NP CONJINK and NP → NP COMPINK. Since there is no f-structure annotation in (41), all right-hand side elements are co-heads (with the default ↑=↓ annotation). By default the METARULEMACRO-INK applies to all categories defined in the grammar. However, if need be, its application can be restricted to selected categories using an additional constraint, as shown in (42).

(42) METARULEMACRO-INK(CAT) ≡ CAT { CONJINK | COMPINK }
     ϵ: CAT $\in_c$ {NP AP, ADvP, COMP, NUM, PART, I, V, PRECONJ... }

NP is used in examples (13), (15), (21) and (27) (pronouns) and (29) (noun), AP in (5) (passive participle), (7) and (38) (adjectives), NUM in (16) (numeral), PART (particle) in (21), C (complementiser, subordinating conjunction) in (18) and (36), I in (11) and (34), PRECONJ (preconjunction) in (23) and (25).

4.2 Templates in lexical entries

The second, main part of the analysis is formalised in the lexical entries of incorporating conjunctions – they implement the insight that such conjunctions, despite being embedded inside the conjunct or inside the subordinate phrase, build their f-structure bottom up, higher in the f-structure than the place where they are located in terms of c-structure. This is achieved in templates provided in (44)–(45) with the help of constraints relying on inside-out functional uncertainty, both of which use the GF variable defined in (43):[7]

(43) GF ≡ {SUBJ|OBJ|OBJ$_\theta$|OBL|XCOMP|XCOMP-PRED|COMP|ADJUNCT ∈}

(44) CONJ-INK(P) ≡   (45) COMP-INK(P) ≡
     (∈ GF* ↑)=%G   (COMP GF* ↑)=%B
     (%G COORD-FORM)= P   (%B PRED)='P<(%B COMP)>'
     ¬(ADJUNCT %G)

The template in (44) is called inside lexical entries of coordinating incorporating conjunctions such as *zaś* and *natomiast* – the P parameter corresponds to the lemma of the conjunction. The first line of (44), (∈ GF* ↑)=%G, is a definition of the path in which the f-structure of the incorporating conjunction is built – it uses an inside-out equation coupled with functional uncertainty, allowing the conjunction to build its structure going up the path consisting of any sequence (including zero)[8] of GF defined in (43), with an obligatory set element at the very end of the path (because coordinate structures are modelled as sets). This path is assigned to the %G local name[9] (variable) used in the remaining constraints: the second constraint, (%G COORD-FORM)= P, introduces P, the conjunction's lemma, as the value of the

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[7](43), (44) and (47) use full names of grammatical functions, so ADJUNCT and XCOMP-PRED instead of ADJ and XC-P, respectively, used in f-structures in order to save space.

[8]E.g. when the conjunction follows the main verb, as in (11), or its co-head, as in (20).

[9]http://ling.uni-konstanz.de/pages/xle/doc/notations.html#N4.1.6

COORD-FORM attribute (coordinating conjunction form) in %G path, which is the f-structure which contains the set with the conjuncts – yielding the hybrid f-structure typical of coordination in LFG. Finally, the third constraint, ¬(ADJUNCT %G), ensures that the f-structure introduced by the coordinating incorporating conjunction is not placed inside the ADJUNCT grammatical function – its value is also a set, so it would also satisfy the condition of having a set element at the end of the path in %G. However, this simple negative constraint precludes this. As a result, the constraints stated in (44) are only satisfied by coordinate structures, as intended.

The idea behind the template in (45), which handles incorporating subordinating conjunctions (complementisers) such as *bowiem* 'since', is roughly similar to (44) but the details are different. This is because incorporating subordinating conjunctions (heading adjunct CPs),[10] unlike coordinating conjunctions, introduce a PRED attribute, which takes a COMP argument containing the subordinate clause. As a result, the first constraint in (45), (COMP GF* ↑)=%B, defines an inside-out path which passes through any sequence (including zero)[11] of GF and ends with a COMP grammatical function. This path is assigned to %B local name (variable). It is used twice in the second constraint, (%B PRED)='P<(%B COMP)>', which introduces the PRED value of the subordinating conjunction (complementiser): it consists of P, which corresponds to its lemma, and (%B COMP), which is the closed clausal complement required by this subordinating conjunction (complementiser).

4.3 C-structure rules

The last element necessary for this analysis to work are c-structure rules. The interaction of c-structure rules presented in this section, the metarule in (41)/(42) and the lexical entries of incorporating conjunctions, coordinating and subordinating, which call templates in (44) and (45), respectively, results in creating appropriate dependencies in f-structure despite the non-standard c-structure position of such conjunctions – the functional uncertainty used in (44) and (45) is constrained by the f-structure built by the rest of the sentence.

The rule in (46) handles coordination with an incorporating conjunction embedded somewhere inside the second conjunct (including gapping, see §3.3).

(46) S → S COMMA S
        ↓∈↑   ↓∈↑

This is the same rule that is used for asyndetic coordination, where no coordinating conjunction is present – the conjuncts are only separated by the comma (COMMA). Unlike under asyndetic coordination, under incorporating coordination the coordinating conjunction is present (CONJINK), but it is placed inside the second conjunct (rather than between the conjuncts). The metarule handling incorporating

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[10]In subcategorised CPs the subordinating conjunction (complementiser) does not contribute its PRED, which is contributed by the main verb of the subordinate clause, but instead it contributes the COMP-FORM attribute which hosts the form of the complementiser (subordinating conjunction).

[11]E.g. when the subordinating conjunction (complementiser) follows the main verb, as in (34), or its co-head (for instance, the marker *się*, or an auxiliary).

conjunctions (see (41)) makes sure that their c-structure position is non-initial – they must follow some category (see the constraint in (42)). The template in (44), called inside the lexical entry of the incorporating coordinating conjunction, ensures that it builds an appropriate f-structure from its non-standard c-structure position.

The following two rules account for examples with an incorporating subordinating conjunction (complementiser) embedded somewhere inside the subordinate clause which it introduces.

(47) S $\rightarrow$ S   CP-INK
$\qquad\qquad$ $\downarrow\in$ ($\uparrow$ ADJUNCT)

(48) CP-INK $\rightarrow$ $\qquad$ S
$\qquad\qquad\qquad$ ($\uparrow$ COMP)=$\downarrow$
$\qquad\qquad\qquad$ ($\uparrow$ PRED)$=_c$ BOWIEM

(47) is the top-level rule, where CP-INK, a CP with an incorporating subordinating conjunction, is added as a modifier (ADJUNCT) of the preceding sentence (S). (48) is the rule which builds the subordinate CP containing the incorporating subordinating conjunction (complementiser). It contains the ($\uparrow$ COMP)=$\downarrow$ annotation which matches the f-structure built by the template in (45) called by the incorporating subordinating conjunction (which requires a COMP). The constraint on its PRED attribute (($\uparrow$ PRED)$=_c$ BOWIEM) ensures that it is contains the relevant subordinating conjunction – since there is no COMP(INK) preceding S in (48), the subordinating conjunction must be embedded somewhere inside S. The metarule handling incorporating conjunctions in (41) ensures that these are always non-initial – they always follow some category (as defined in (42)), so the incorporating subordinating conjunction (complementiser) must be in a non-standard c-structure position.

Finally, rules in (49)–(50) make it possible to account for incorporating conjunctions in stand-alone clauses (without the first conjunct or without the main clause modified by the subordinate clause) discussed in §3.4.

(49) ROOT $\rightarrow$ $\qquad\qquad\qquad$ S
$\qquad\qquad\qquad\qquad\qquad$ $\downarrow\in\uparrow$
$\qquad\qquad$ ($\uparrow$ COORD-FORM) $\in_c$ {ZAŚ, NATOMIAST}

(49) creates a coordination structure with a singleton set containing only the stranded second conjunct (see examples in (36) and (38)). The constraint on the form of the coordinating conjunction (($\uparrow$ COORD-FORM) $\in_c$ {ZAŚ, NATOMIAST}) ensures that it must be present. Similarly as in (48), since there is no coordinating conjunction category (CONJ(INK)) in the rule in (49), it must be embedded somewhere in S. The metarule handling incorporating conjunctions in (41) ensures that these must follow some category (see the constraint in (42)) – as a result, such conjunctions are never initial and appear instead in a non-standard c-structure position.

By contrast, the rule in (50) builds a structure where the incorporating subordinating conjunction (complementiser), which is the head of the stand-alone, stranded subordinate clause, serves as the main predicate (as in (34)).

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(50) ROOT → CP-INK

Constraints ensuring that there is an incorporating subordinating conjunction (complementiser) in CP-INK are imposed in the rule in (48), which interacts with relevant templates and metarules, as explained above when discussing (47)–(48).

5   Conclusion

This paper presented an implemented LFG analysis of Polish incorporating conjunctions, both coordinating and subordinating, which have a non-standard c-structure position – they are embedded inside the c-structure of the item that they are normally expected to precede: the second conjunct or the adjunct subordinate clause. Despite this difference in c-structure, the proposed analysis successfully accounts for the f-structure contribution of incorporating conjunctions which is fully consistent with corresponding sentences without incorporation. The motivation for adopting such an analysis comes from the fact that that incorporating conjunctions, despite the their non-standard c-structure position, are interpreted in the same way as their non-incorporating counterparts (the difference is purely stylistic).

The proposed analysis avoids making any changes to the general grammar (understood as all parts of the grammar before extending it so as to account for incorporating conjunctions). Instead, using standard, existing LFG mechanisms, the proposed analysis puts the burden of producing appropriate f-structures on incorporating conjunctions (both coordinating and subordinating) – they build relevant f-structure fragments from their non-standard c-structure position in a bottom up manner, using functional uncertainty.

Though the proposed analysis of incorporating conjunctions is very simple, it successfully accounts for complex interactions, which include: embedding the incorporating coordinating conjunction inside the adjunct CP which modifies the second conjunct (§3.1), embedding the incorporating subordinating conjunction (complementiser) inside one of its coordinate phrase dependents (§3.2) and gapping (a variety of coordination where the predicate in the second conjunct is elided, §3.3). It also covers the occurrence of incorporating conjunctions in stand-alone clauses (§3.4), where the first conjunct is missing or where there is no main clause on which the subordinate adjunct CP normally depends.

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