REITERATIVE SYNTAX

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1. Introduction

This paper investigates an hypothesis on the nature of clause structure according to which syntactic structures consist of end-to-end reiterations of a fixed hierarchical syntactic template. Schematically, if the template is that in (1a), a sentence is represented by a structure such as that in (1b).

(1) a. [A [B [C [D]]]]

This hypothesis will be developed at length, primarily in connection with the German language.

There are both conceptual and empirical motivations for this hypothesis. Conceptually, the hypothesis places a certain constraint on the proliferation of syntactic structure which concords with a theory of learnability discussed in Poeppel & Wexler (1993). The hypothesis says that when a syntactic projection occurs in a certain series of projections, it may only recur in that series. More broadly, when a feature is licensed in a certain environment, it may only be licensed in that environment, though the environment itself (the series) may recur within the clause. Functional projections may therefore be typologized according

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to their distribution in the series, since their distribution is fixed. Since the syntactic template is also finite, there is a finite classification of functional projections. Hence, the typology of functional projections is limited and the properties of functional projections are constrained by their classification.

Poeppel & Wexler propose the Full Competence Hypothesis, which contends that children possess *a priori* knowledge of complete clause structure. They argue that children do not gradually deduce syntactic structure from the interaction of experience and innate principles of well-formedness, but rather children begin language acquisition with innate knowledge of syntactic structure itself. This approach to the learnability conundrum requires the universality of clause structure. The present study pursues the idea that large components of clauses are atomic, and that natural language gets a great deal of mileage out of a few syntactic configurations. According to this hypothesis, the smallest building block of syntactic structure is much larger than the traditional X’ projection of Chomsky (1970). The existence of atomic series of syntactic structure lends credence to approaches to learnability such as Poeppel & Wexler’s, in which such series have a significant utility function; they are a crucial part of the pre-given portion of the language faculty.

Atomicity in the sense used here refers to the level of organization at which language is perceived, and not necessarily to an objectively basic level of organization. Much linguistic research indicates that the basic unit of syntactic organization is the phrasal projection of a single morpheme. The hypothesis investigated here is not that such phrasal projections do not exist, but rather that syntactic structure is not perceived in units smaller than a series of several such phrases. An illustrative parallel comes from geometry. A point is a geometrically basic object. A line is a complex object which consists of a set of points. However, a human does not perceive a line as a set of points. A line is a perceptually basic object. Likewise, a series of phrasal projections which is perceptually basic may be broken down into objectively smaller categories, which nonetheless do not act independently in the perception of syntactic structures. The hypothesis introduced here concords with the existence of X’ categories in an analogous manner.

Empirical motivation for the hypothesis will be introduced at length. The first part of this paper discusses the fine structure of complementizers in dialects of German that display complementizer inflection. In such dialects, a complementizer may bear agreement morphology. I will discuss the data in more detail below. The second part of this paper shows that the syntactic positions available within the complex complementizer superstructure are available lower in the phrase structure in the same hierarchical order as they appear in the complementizer superstructure. These data show that the CP-IP system of Chomsky’s (1993) basic clause structure is split in German (massively) into at least two reiterations of the same set of functional projections in the same ordering relation. This set is that in (2), in which ‘CONP’ houses coordinating conjunctions, WHP houses WH-elements, AGP houses arguments and triggers agreement, and CP represents a general A-bar position.

(2) \[ \text{CONP [ WHP [ CP [ AGP [ CP ]]]]} \]

The present study does not show that German phrase structure consists exclusively of reiterations of the series in (2). A number of considerations, including data presented here, show that there is more structure in German finite clauses than two reiterations of (2) make available. The hypothesis discussed here predicts that such additional structure falls into the pattern displayed in (2), but this prediction remains to be investigated. The paper concludes with a discussion of the hypothesis in light of the analysis of German clause structure presented below, as well as the Full Competence Hypothesis, and the formulation of Abraham (1995) of the semantic utility of reiteration of syntactic structure.

1.1 Methodological assumptions

Certain assumptions will guide the argumentation in this paper which I will abide by axiomatically by virtue of their generative power for a large class of constructions in natural language, but more importantly by virtue of their lack of generative power outside of this class. The formulation of an analysis of a linguistic phenomenon amounts to discovering how the properties of this class are manifested in the phenomenon under study. These assumptions are definitions of structural configurations and their functions within syntactic structure which have strong appeal as facets of a constrained theory. They are listed below.

1.1.1 Theoretical framework

The analysis formulated in this paper belongs to the class of analyses broadly referred to as the Government-Binding framework, exemplified in Chomsky (1981). I use the Government-Binding framework as a foundation for what follows, in particular the X-bar schema and the binding theory. I adopt certain aspects of the contemporary version of this framework, the Minimalist Program, which I will discuss when relevant.
1.1.2 Antisymmetry

I adopt the constraints on syntactic representations presented in Kayne (1994) under the rubric of ‘antisymmetry.’ The most important of these is the Linear Correspondence Axiom (LCA), which states that asymmetric c-command maps directly onto linear order. From this axiom, and on the basis of several other assumptions, Kayne formulates the following corollaries: (i) in the configuration in (3):

(3)

there is no adjunction to XP, and (ii) adjunction to X is to the left. As a result, movement operations on phrases may target only a specifier position, and movement operations on heads may target only an adjunction site to the left of the category being adjoined to, never to its right. See Kayne (1994) for a complete discussion of these and related issues.

1.1.3 Head Movement Constraint

I adopt Travis’s (1984) Head Movement Constraint (HMC), which states that an X^0 category may not move over another X^0 category. A head may move to an immediately c-commanding head position. Further movement of the displaced head obtains only through movement of the category to which it is adjoined.

1.1.4 Generalized doubly filled comp filter

I adopt Koopman’s (1996) restriction on spec-head configurations which states that the head and specifier positions of a projection cannot simultaneously be filled with lexical material (see also Sportiche 1992). I will refer to this principle as the ‘generalized doubly filled comp filter’. It requires the specifier of a projection to be non-overt when its head is overt, and its head to be non-overt when its specifier is overt. This principle constrains analyses of doubly filled comp effects in a crucial way. For example, sentences such as (4a) below, reported by Henry (1995) to be grammatical in Belfast English, cannot be analyzed as in (4b), which violates the generalized doubly filled comp filter, but rather they must be analyzed as in (4c).

(4)

a. I wonder which dish that they picked.

b. ...[{CP [DP which dish ] that [IP...}

c. ...[{XP [DP which dish ] {CP that [IP...}

In (4b), which dish occupies the specifier position of CP, which is headed by that. In this configuration, both the specifier and the head of CP are overt, a configuration ruled out by the generlized doubly filled comp filter. In (4c), which dish occupies the specifier position of a projection XP above CP. The head of XP is non-overt. That occupies the head of CP, whose specifier is non-overt. Such a configuration satisfies the generalized doubly filled comp filter. The analysis proposed in this paper conforms to this constraint throughout. See Koopman (1996) for further motivations and consequences for the generalized doubly filled comp filter.

1.1.5 Agreement licensing

I assume as in the Minimalist Program that the spec-head relation is the canonical agreement configuration.

(5) A head agrees in feature content with an element in its specifier position.

I follow Chomsky (1993) and others in assuming that φ-feature agreement is licensed in a specialized agreement projection (AoP), contrary to recent formulations of the Minimalist Program (Chomskv, 1995). In recent formulations, subject-verb agreement is treated as a reflex of a spec-head relation between the subject and verb, regardless of what substructure the relation obtains in. Since the subject and verb are in a spec-head relation in VP across clause types (Koopman & Sportiche 1988), such a treatment requires a mechanism that delays agreement checking until after movement out of VP, lest agreement obtain in, for example, infinitivals. Such a mechanism could take the form, for example, of a principle to the effect ‘delay agreement checking’ or the form of a stipulation on exactly what substructure mediates agreement. The postulation of agreement projections may viably be construed as a notational variant of the latter approach.

I follow Baker (1985), Johnson (1990), Kayne (UCLA class lectures, 1996), Koopman (personal communication), Sportiche (1992; UCLA class lectures, 1995), and others in adopting a certain implementation of Baker’s (1985) Mirror Principle, namely that morphological concatenation—word level and otherwise—occurs during the syntactic derivation of a sentence, not within a pre-
syntactic morphology module. I will term this approach the ‘concatenative syntax’ approach to morphology, as opposed to the ‘morphology checking’ approach advocated by the Minimalist Program. This approach has the advantage of unifying the morphology and syntax modules of the grammar, and in so doing, it places a heavy constraint on analyses of morphological phenomena, since it makes such phenomena accountable to constraints on phrase structure. The restriction of morphological concatenation to syntactic operations means that every bound morpheme is either syntactically concatenated to its host by head movement or phonologically concatenated to its host at PF. There is no pre-syntactic affixation. Thus:

(6) Morphological processes are syntactic or post-syntactic.

2. Structure of complex complementizers

2.1 Data

This section presents a summary of data which will be relevant throughout this article. It discusses verb-second and related phenomena in matrix clauses and in two types of dependent clauses, those headed by subordinating conjunctions and those headed by coordinating conjunctions.

2.1.1 Matrix clauses

German matrix clauses display the well known verb-second phenomenon. The main verb must be the second element in a finite sentence, i.e., it must be separated from the left sentence periphery by exactly one constituent. This element may be the subject, as in (7a), or any other phrasal element, such as another argument, as in (7b), or an adverb, as in (7c).

(7) a. Der Professor hat dem Studenten gestern ein Buch geliehen. 
    the professor has the student yesterday a book lent
    “The professor lent the student a book yesterday.”

   b. Ein Buch hat der Professor gestern dem Studenten geliehen. 
      a book has the professor yesterday the student lent
      “The professor lent the student a book yesterday.”

   c. Gestern hat der Professor dem Studenten ein Buch geliehen. 
      yesterday has the professor the student a book lent
      “The professor lent the student a book yesterday.”

As a beginning point, I will adopt den Besten’s (1983) analysis of the verb-second phenomenon, according to which the main verb occupies the position C₀ at S-structure in main clauses. This analysis generalizes to a subclass of dependent clauses, in which verb-final word order is required in the dependent clause. In den Besten’s account, the verb cannot move to the C₀ position in these cases because C₀ is filled by an overt complementizer.

2.1.2 Dependent clauses: subordinating conjunctions

The basic set of facts I will be concerned with in the first part of this paper is exemplified in the data that follow.

(8) a. Wir haben gewußt, daß-st du in Salzburg war-st
    we have known that-2s you (s) in Salzburg were-2s
    “We knew that you (s) were in Salzburg.”

   b. Wir haben gewußt, daß-ts ihr in Salzburg war-ts
    we have known that-2pl you (pl) in Salzburg were-2pl
    “We knew that you (pl) were in Salzburg.”

   c. Wir haben gefragt, ob-st du in Salzburg war-st
    we have asked whether-2s you (s) in Salzburg were-2s
    “We asked whether you (s) were in Salzburg.”

   d. Wir haben gefragt, ob-ts ihr in Salzburg war-ts
    we have asked, whether-2pl you (pl) in Salzburg were-2pl
    “We asked whether you (pl) were in Salzburg.”

Complementizers such as daß or ob, traditionally termed ‘subordinating conjunctions,’ may bear an inflectional morpheme that agrees in φ-features with the subject. The inflection is not obligatory. There are no first or third person agreement markers in the complementizer agreement paradigm. The complementizer agreement paradigm and the verbal agreement paradigm are illustrated comparatively in (9) (see also Bayer 1984).
2.1.3 Dependent clauses: coordinating conjunctions

As opposed to the complementizers, there is a class of clause-introducing elements exemplified by denn “because” or aber “however” traditionally termed the ‘coordinating conjunctions’, which differ from the subordinating conjunctions in all three properties described above. They may never bear an inflectional morpheme, as in (12a & b), they require verb-second word order within the clause they introduce, as in (12a & b), and the preverbal element in the clause they introduce may be a topic, as in (12c & d).

(12) a. Hans kommt nicht mit, denn-(*st) du <hast> ihn beleidigt <*hast>.
Hans comes not with, because-(*zs) you <have> him offended <*have>
“Hans isn’t coming with us, because you offended him.”

b. Hans ist in der Universität, aber-(*st) du <kannst> ihn an-
rufen <*kannst>.
Hans in the university, however-(*zs) you <can> him call <*can>
“Hans is in the university, but you can call him”

c. Hans fährt nach Salzburg, denn die Berge hat er gern.
Hans travels to Salzburg, because the mountains has he fond
“Hans is traveling to Salzburg, because he is fond of the
mountains.”

d. Hans trinkt Tee, aber Kaffee hat er auch gern.
Hans drinks tea, but coffee has he also fond
“Hans drinks tea, but he is fond of coffee also.”

2.2 Analysis of complementizer agreement

Per assumption (5), I propose that complementizer agreement is a manifestation of a structural relation between the subject and the subject agreement morpheme. The proposal is that in (13a), for example, the subject pronoun is in a spec-head configuration at some level of representation with the agreement morpheme, as illustrated in (13b).

(13) a. daß-ts ihr komm-ts
  that-2PL you come-2PL
  “that you (PL) come”
What remains to be clarified in this proposal is the relation between XP and CP. Below I discuss two formulations of this relation. The first is Zwart’s (1993) analysis of complementizer inflection in Dutch. The second is a revision of Zwart’s analysis which I propose in light of conflicts between Zwart’s analysis and certain of the methodological assumptions discussed above, but which preserves desirable aspects of Zwart’s analysis.

2.2.1 Zwart

Zwart proposes that XP in (13) is the canonical subject position AGRSP. In the configuration illustrated in (14), the head AGRSP with which the subject is in a spec-head relation raises to C\textsuperscript{0} licensing agreement inflection on the complementizer.

(14) \[
\begin{array}{c}
\text{CP} \\
\text{C} \\
\text{AGRSP} \\
\text{DP} \\
\text{AGR} \\
\end{array}
\]

Structure (14) relates complementizer inflection directly to AGRSP. This formulation of the phenomenon has the advantage of explaining why complementizer agreement is exclusively with the subject. Complementizers never agree with any element other than the subject, as the data below illustrate.

(15) a. daß-st du das Buch gelesen hast that-2s you the book read have “that you read the book”

b. * daß-st der Hans dir das Buch geliehen hat that-2s the Hans you-DAT the book lent has (“that Hans lent you the book”)

c. * daß-st der Hans dich gelobt hat that-2s the Hans you-ACC praised has (“that Hans praised you”)

In (15), the grammatical example (15a), in which the complementizer agrees with the subject, contrasts with the ungrammatical (15b), where it agrees with the indirect object, and (15c), where it agrees with the direct object. An analysis in which the position for licensing complementizer agreement is distinct from the canonical subject position must also include a restriction that insures that only the subject may occupy this position. Such a restriction is a peculiar redundancy that suggests that there is only one position involved.

For example, suppose that complementizer agreement is licensed in an agreement projection dominating CP, which in turn dominates AGRSP, as illustrated below.

(16) \[
[\text{AGR} [\text{CP} [\text{AGRSP}]]]
\]

C\textsuperscript{0} raises to AGR\textsuperscript{0} to license complementizer agreement morphology. The subject moves at LF from its surface position in [SPEC-AGRSP] to [SPEC-AGR] in order to form an agreement configuration in AGR. (16) raises the question of what prevents other arguments from moving into [SPEC-AGR] at LF in lieu of the subject, i.e., the question of what rules out (15b & c).

A possible candidate for such a restriction is a prohibition on A-movement over an A-position. If any agreement projection qualifies as an A-position, then both AGRSP and AGR in (16) are A-positions, and movement to each from an A-position qualifies as A-movement. Rizzi (1990) discusses configurations such as this and their binding theoretic properties. According to the theory of relativized minimality, an element in an A-position is a potential binder of a trace in an A-chain which the A-element c-commands. If the antecedent of the trace c-commands the A-element, the A-element interrupts antecedent government of the trace. Such an A-chain is illicit, since it does not respect relativized minimality, a necessary condition of antecedent government. Therefore, for example, a topicalized object in AGR in the diagram in (16) will fail to antecedent govern its trace in AGR, since the subject in AGRSP is a minimal governor for the trace of the object. The object and its trace belong to an A-chain, since both occupy A-positions. The subject is in an A-position and c-commands the trace of the object, while the antecedent of the object trace c-commands the subject. Hence, the
subject is a minimal governor interrupting antecedent government of the object trace, rendering the chain between the object and its trace illicit. Hence the ungrammaticality of object movement to AgrP. The subject itself, however, may move to AgrP and unproblematically A-bind its trace in AgrSP, since no other potential antecedent governor intervenes.

However, the relativized minimality account of the exclusivity of subject agreement on complementizers is problematic in light of the similarity of the structure in (16) to the structure in (17).

(17) \[ \text{AgrSP} [ \text{TP} [ \text{AgrOP} ]] \]

(17) is the partial clause structure of English according to Chomsky (1993). The subject originates as the specifier of VP and the object originates as the complement of VP. At LF, the subject occupies [SPEC-AgrSP] and the object occupies [SPEC-AgrOP]. At LF, therefore, the subject c-commands the object and the object c-commands the VP internal trace of the subject. The object is therefore a minimal governor for the subject trace, a violation of relativized minimality. Chomsky (1993) formulates a solution to this problem in terms of domain extension and ‘equidistance’. All positions within the domain of the verb are equidistant. Verb movement from VP to AgrOP extends the domain of the verb to AgrOP, rendering the canonical object position [SPEC-AgrOP] equidistant to the subject and object traces in VP. Since the subject and object traces are equally close to the object, the object may bind its trace without the subject trace technically intervening. Hence, the subject trace is free with respect to the object and may be bound by the subject in spite of the syntactic intervention of the object.

The notion of equidistance or any comparable way of licensing the configuration in (17) at LF is extendible to the configuration in (16). Verb movement to AgrSP extends the domain of the verb in (16), rendering the trace of the subject in VP equidistant from a trace in AgrOP of an object topicalized to AgrP. Since the two traces are equally distant from the subject in AgrSP, the subject may bind its trace in VP leaving the object trace free. The object trace may in turn be bound unproblematically by its antecedent in AgrP. A subject in AgrSP therefore does not represent a minimal governor for a trace of a topicalized object for the same reason that an object does not represent a minimal governor for a trace of a subject. Due to the a priori structural similarity of the two configurations (16) and (17), any foreseeable solution that applies to one is extendible to the other. This paradox suggests that the problem is not with the notion of domain extension and equidistance, or any particular resolution to the problem of subject raising over AgrOP. Rather, it indicates that the structural distinction between the canonical subject position and the configuration in which complementizer agreement obtains is not parallel to the structural distinction between AgrSP and AgrOP.

Zwart’s analysis does not include such a parallel. Whereas AgrSP and AgrOP are distinct projections, the projection in which complementizer agreement obtains is non-distinct from the canonical subject position. AgrSP licenses complementizer agreement morphology. Zwart’s analysis has the advantage that it explains the strict association of complementizer agreement with the subject to the exclusion of other arguments. It explains this requirement by relating complementizer agreement directly to AgrSP, the canonical subject position. Due to the strong explanatory force of this proposal, I will retain it in the analysis I propose in what follows.

As such, however, Zwart’s analysis is incompatible with certain of the methodological assumptions guiding the present analysis. Namely, it is incompatible with the assumption that word concatenation is syntactic and that adjacency is left-branching. The assumption that word concatenation is syntactic requires that the complementizer and the subject agreement morpheme associate syntactically at S-structure. The considerations discussed above indicate that the subject agreement morpheme associated with the complementizer heads AgrSP. Since adjacency is to the left, the association of the agreement morpheme and the complementizer through head movement of AgrSP to C', as proposed by Zwart, will yield the form in (18), which displays the incorrect linear order of stem and affix.

(18)\[
\text{CP} \rightarrow C^' \rightarrow C \rightarrow \text{AgrSP} \rightarrow \text{AgrS}^1 \rightarrow \text{ts} \leftarrow \text{AgrS}^2 \rightarrow \text{DP} \rightarrow \text{ihr} \rightarrow \text{AgrS} \rightarrow \text{ti}
\]

In what follows, I propose a formulation of Zwart’s proposal that retains the insight that complementizer inflection is triggered by AgrSP, but which is compatible with the methodological assumptions guiding the present analysis.

2.2.2 Revisions to Zwart

In accordance with the structural restriction on morphological covariation between heads and phrases discussed in §1.1.5, subject agreement obtains in a
spec-head configuration in an agreement projection between the subject and the head of the agreement configuration, the terminal element of which is the inflection itself, as illustrated in (13b). I retain Zwart’s conclusion that XP in (13b) is AGRSP. The derivation of complementizer inflection in a string such as (13a) begins with the configuration in (19a), in which coindexation indicates agreement, and derives the configuration in (19b).

(19) a. 
```
  AGRSP
   ____________
     |           |   |
  DP  AGRS'    AGR
      ____________
     |         |   |  |
  ihri  tsi
```

b. 
```
  AGRS^0
   ____________
     |           |   |
  C^0  AGRS^0
      ____________
     |         |   |  |
  daβ  -ts
```

In (19b), the complementizer has left adjoined to the head AGRS^0, and daβts is syntactically represented as a complex head of the category AGR.

The LCA and the HMC restrict the form of this derivation in an extreme way. In fact, (19b) can only be derived from (19a) in one way. C^0 must raise to AGRS^0 from within the complement domain of AGRSP. That is, under the LCA and the HMC, (19b) can only be derived in the configuration in (20):

```
(20)
  CP^2
   __________
     |        |   |
  C^2  AGRSP
      ____________
     |         |   |  |
  AGRS^0  C^2  DP  AGRS^0
                ____________
               |         |   |  |
      daβ  -ts  ihr  t^i  CP^1
```

The conclusion that complementizers are base generated below AGRSP is forced by the methodological assumptions constraining this analysis as well as the desire to capture the strict relation between the inflectional morpheme associated with the complementizer and the subject in terms of a syntactic relation between CP and AGRSP. But this proposal faces certain problems, one of which it shares with Zwart’s analysis, which is the issue of how the verb acquires the subject agreement suffix with which it obligatorily appears in finite constructions. In the analysis I have proposed, AGRS^0 is monoposited by the complementizer. But the main verb never fails to bear agreement for the subject. In the analysis I have proposed, the trace of the complementizer in CP below AGRSP prohibits verb movement to AGRS^0 whenever a complementizer is present. I will address this issue in detail below.

2.3 Verbal agreement morphology

I will broach the issue of how the verb acquires subject agreement morphology by examining briefly subject-verb agreement phenomena in Classical Arabic. I will then show how the Arabic data bear on the issue of German verb agreement.

2.3.1 Subject-verb agreement in Classical Arabic

Classical Arabic word order alternates more or less freely between Verb-Subject-Object word order and Subject-Verb-Object word order. The subject agreement paradigm that the verb displays is apparently sensitive to the position of the subject. When the subject precedes the verb, the verb displays an agreement suffix which covaries with the subject with respect to the φ-features per-
son, number, and gender. However, when the subject follows the verb, the verb displays an agreement suffix which covaries with the subject with respect to only the feature gender, displaying default third person singular morphology regardless of the \( \phi \)-feature content of the subject. This alternation is illustrated below.

(21) a. allaf-a Moen maqaala.
   wrote-3ms Moen article
   "Moen wrote an article."

b. Moen allaf-a maqaala.
   Moen wrote-3ms article
   "Moen wrote an article."

c. allaf-a al-asaatidha maqaala.
   wrote-3ms the-professors article
   "The professors wrote an article."

d. al-asaatidha allaf-uu maqaala.
   the professors wrote-3mp article
   "The professors wrote an article."

In (21a & b), in which the subject is singular, the verb bears a third person masculine singular suffix regardless of the position of the subject. When the subject is plural, there is a distinction in agreement marking between the linear orders. In (21c), where the subject follows the verb, the verb agreement suffix matches the subject in gender, but not in number. The suffix appears in the default singular form. In (21d), where the subject precedes the verb, the verb agreement suffix matches the subject in all features.

It is unclear a priori whether the position of the verb or of the subject is constant in the examples above, if either. I claim that the position of the verb is constant on the basis of the fact that negative subjects occur obligatorily preverbally, as illustrated below.

(22)  
<laa ustaadh> allaf<a laa ustaadh> maqaala.
<no professor> wrote <no professor> article
"No professor wrote an article."

While it is a mundane corollary of the feature checking theory that properties of phrases such as specificity or negativity correlate with the syntactic position of the phrase bearing the property, it is less clear that a property of a phrase may affect the distribution of a distinct element which does not bear the property. Thus an analysis of (22) in which negative and non-negative subjects occur in the same position, but with negative subjects disallowing verb raising to a pre-subject position, is unwarranted in light of the availability of an analysis in which the position of the verb is fixed and negativity is licensed preverbally. The verb, whose interpretation does not differ according to whether its subject is negative or non-negative, is stationary in every case, whereas the subject, whose interpretation depends dramatically on whether it is negative or non-negative, instantiates this distinction syntactically. Negativity is licensed pre-verbally, making post-verbal negative subjects illicit. The position of the verb, however, is fixed.

In light of the parallels between Arabic and German that will be discussed in §2.3.2 and in lieu of evidence to the contrary, I propose that Arabic and German are parallel with respect to the position of the verb as well, and that they differ in that German requires a preverbal constituent whereas Arabic does not. That is, the Arabic verb is fixed in CP2, preceding the canonical subject position AGRSP. According to these considerations, the distinction between SVO and VSO sentences in Arabic is a distinction in the landing site of the subject. Post-verbal subjects occupy AGRSP and preverbal subjects occupy a position above CP2, whereas the verb is fixed in CP2.

Classical Arabic is a pro-drop language. When the subject is non-overt, the verb agreement suffix must display agreement for all features of the subject, i.e., the verbal agreement paradigm for non-overt subjects is the same as that for preverbal subjects, as the example below demonstrates.

(23) allaf-uu maqaala
    wrote-3mp article
    "They wrote an article"

The generalization that accounts for these data in the most uniform way, that is, making the fewest distinctions, is that the distinction in the agreement paradigm between pre-verbal and post-verbal subjects is not a sensitivity to the linear order of the subject and verb, but rather a sensitivity to the overtness of the element occupying the post-verbal subject position. This proposal avoids a distinction in the distribution of empty and non-empty categories (that empty categories must be preverbal whereas non-empty categories may be post-verbal), and it avoids reference to linear order, i.e., the distinction between 'pre-verbal' and 'post-verbal.' It reduces both of these distinctions to one distinction, that between 'overt' and 'non-overt.' In (23), full agreement is triggered by the empty category pro in the canonical subject position, which the verb precedes. In (21d), full agreement is triggered by the empty category NP-trace in the canonical subject position which is related by movement to the subject which has
raised to a topic position preceding the verb. In (21c), the overt category al-
asaatidha “the professors” in the canonical subject position triggers degenerate
(gender only) agreement morphology on the verb.

This solution is not typical of analyses of agreement phenomena in Arabic.
Typical analyses, exemplified by Ouhalla (1994), and Coopmans (1994), as-
sume that agreement is always complete, but that agreement for distinct φ-
features may be split between distinct projections. Coopmans (1994), for example,
offers an alternative analysis of the data above which follows this line of rea-
soning. He claims that AgrP is split between projections licensing person, number,
and gender respectively. Nominative case is assigned by a person licensing head
either in a spec-head configuration with the subject in [SPEC-PERP] or under gov-
ernment to the subject in [SPEC-NUMP] in the configuration below.

\[
\text{(24) } \quad \text{[ TP [ PERP [ NUMP [ GP [ VP ]]]]]}
\]

The verb obligatorily moves at least to PERP. The subject moves from
[SPEC-VP] to the nearest subject landing site [SPEC-GP]. Since it does not receive
case in this position, but rather only in [SPEC-NUMP] or [SPEC-PERP], it continues
to move to the nearest case position [SPEC-NUMP]. The ECP requires the subject
trace in [SPEC-GP] to obligatorily be coindexed with the head G0, forcing gender
agreement. The trace of the subject in [SPEC-GP] is antecedent governed by the
subject in [SPEC-NUMP] only if NUMP is not a minimal governor. Verb movement
through NUMP extends the domain of G0 for antecedent government of the trace in
[SPEC-GP], but only if G0 and the trace are coindexed. See Coopmans (1994:fn 4)
for more detail. Verb-subject word order with only gender agreement falls out
from this configuration. The subject has the additional option of movement to
[SPEC-PERP]. Movement of the subject from NUMP to PERP activates number
agreement in the same manner as movement from GP to NUMP activates gender
agreement. Subject-verb word order with full agreement falls out from this con-
figuration.

Coopmans does not discuss non-overt subjects. Since movement from a
projection activates agreement for the feature the projection represents, then
pronominal subjects, non-overt elements which instantiate person as well as
number and gender distinctions, must move out of PERP. Non-overt subjects
therefore have a distribution distinct from overt subjects. Hence, proposals of
the type Coopmans formulates do not dispense with the distinction between
overt and non-overt elements. Not only does the grammar refer to overtess, it
is the source of a vacuous syntactic transformation. If the differentiation of AgrP
were to eliminate the necessity of referring to overtess as a property of sub-
jects, this would represent an advantage over the approach discussed previously.

But it does not. However, this approach has the advantage that agreement is
never partial, rather, it is always complete with respect to the position of the
subject. The difference between degenerate and full agreement is therefore
related directly to a visible distinction in the distribution of overt subjects.

However, an additional problematic attribute of the structure in (24) is its
similarity to the structures in (16) and (17) with regard to the multiplicity of A-
positions. In (24), verb movement extends the domain of the verb to GP, making
both the subject and the object base positions equidistant from [SPEC-GP].
Hence, an object in GP may bind its trace in VP leaving the subject trace free. A
subject in the nominative case position NUMP may bind the subject trace without
the object in GP constituting a minimal governor. Movement of the subject to
PERP and topicalization of the object to a high A'-position leaves traces in NUMP
and GP triggering agreement for these features. Such a structure is sanctioned by
the partial grammar of Arabic described by Coopmans but it does not generate
grammatical sentences, but rather sentences in which the verb bears an agree-
ment morpheme with the number specification of the subject and the gender
specification of the object.

The split-Agr hypothesis endemicly problematizes the mechanism of sub-
ject mapping from D-structure to S-structure along the lines demonstrated above.
For this reason, it does not represent a genuine alternative to the analysis pre-
sent ed here, and I assume that distinct φ-features are not distributed among dis-
\[...\]

\[
\text{(25) a. allaf-a Moen wa Faatima maqala.}
\text{wrote-3MS Moen and Faatima article}
\text{“Moen and Faatima wrote an article.”}
\]

\[
\text{b. allaf-at Faatima wa Moen maqala.}
\text{wrote-3PS Faatima and Moen article}
\text{“Faatima and Moen wrote an article.”}
\]
2.3.2 Subject-verb agreement in German

The distinction demonstrated in (25) for Arabic in the agreement paradigm with respect to the position of the subject relative to the agreeing element, as well as first-conjunct agreement with a conjoined constituent, is attested in German in the distinction between the complementizer agreement paradigm and the verbal agreement paradigm. The complementizer agreement paradigm is degenerate with respect to the verbal agreement paradigm, as the table in (9) illustrates. Correlatively, subjects precede verbs, whereas they follow complementizers. German therefore instantiates the generalization that agreement is degenerate for an argument that follows the agreeing element and complete for an argument that precedes the agreeing element.

Further, the German agreement paradigm exhibits sensitivity to the features of the first conjunct of an argument that follows the agreeing element, but not of an argument that precedes the agreeing element. The data below illustrate.

(26) a. daß-st du komm-st
    that-2S you come-2S
    "that you come"

    b. daß-st du und Hans komm-ts
    that-2S you and Hans come-2PL
    "that you and Hans come"

When the subject of a clause introduced by a complementizer is an unconjoined pronoun, as in (26a), the same inflection appears on both the complementizer and the verb. However, when the subject is a coordinate structure, the first member of which is a pronoun, as in (26b), a distinction arises between complementizer agreement morphology and verb agreement morphology. Like the post-verbal subject pattern in Classical Arabic, the complementizer agrees only with the first conjunct, displaying second person singular agreement morphology. Like the pre-verbal subject pattern in Classical Arabic, the verb agrees with the coordinate structure as a constituent, displaying second person plural agreement morphology.

The analysis I argued in favor of for the Classical Arabic agreement phenomena relates degenerate agreement and first-conjunct agreement to the overtness of the element in the agreement morphology licensing position. For German I propose the same. Just as the Arabic verb bears degenerate agreement with (the first conjunct of) an overt element in the canonical subject position, the complementizer in the German example in (26b) bears degenerate agreement with (the first conjunct of) an overt element in the canonical subject position.
Thus the subject in (26b), or at least the first conjunct, appears in \[\text{SPEC-AGRSP}\]. Just as the Arabic verb bears full agreement with an empty category in the canonical subject position, the verb in the German example in (26b) bears full agreement with an empty category in an agreement licensing position. But since the canonical subject position is occupied by the overt subject, the empty category which triggers verb agreement is not in the canonical subject position.

The empty category with which the verb agrees is presumably an NP-trace of the raised subject. But the trace with which the verb agrees is not the subject trace in the base position of the subject, \[\text{SPEC-VP}\]. A proposal which allows subject agreement morphology licensing within VP would fail to capture dependencies between subject agreement and finiteness, an IP-level property, specifically the absence of agreement morphology in non-finite clauses. Such a proposal would predict that subject-verb agreement would always obtain, since the subject and verb are local in VP across clause types, regardless of inflectional syntax level properties such as finiteness. These considerations point toward the conclusion that there is a subject position lower than the canonical subject position but outside of VP, in which an NP-trace of the subject licenses full agreement morphology on the main verb.

Such a conclusion is independently forced by assumption (6), which states that there is no pre-syntactic affixation. The verb bears subject agreement regardless of the position of the verb with respect to the subject. In verb-final clauses with high subjects, the subject and verb are distant from each other. In (27), the subject \textit{du} is separated from the agreeing verb \textit{hast} by IP-level material.

\[(27)\quad \text{daßt du gestern zuhause in der Nacht das ganze Buch gelesen hast} \]

that you yesterday at-home in the night the entire book read have

“that you read the entire book at home last night”

Assumption (6) requires the verb to be adjoined to the subject agreement licensing head at S-structure, since the verb and the agreement morpheme are spelled out as a word. The subject agreement licensing position can therefore not be the position occupied by the subject in (27), since the verb is not local to this position at S-structure.

According to assumptions discussed in §1.1.5, the movement operation through which the verb and its agreement inflection are concatenated must precede S-structure. The fact that the inflected verb in (27) is clause final and does not appear to have moved indicates that nothing visibly intervenes between the base position of the verb and the position in which the subject agreement morpheme is generated. That is, the lower subject agreement licensing position is adjacent or near adjacent to VP, as illustrated in (28).

\[(28)\quad [\text{CP}_2 [\text{AGRSP} [\text{CP}_1 \ldots [\text{AGRSP} \ldots [\text{AGRSP} [\text{VP}]]]]]]\]

The fact that the lower AGRSP is under AGROP justifies the introduction of the low subject position in view of the difficulties surrounding the double-AGR approach to complementizer agreement discussed in §2.2.1. The double-AGR approach is problematized by the fact that whatever mechanism allows subject raising to the canonical subject position over AGROP will allow object raising over the subject to a complementizer agreement licensing position above AGRSP because of an \textit{a priori} structural symmetry between the A-positions involved. No such symmetry obtains in (28). Subject and object movement to the low AGRSP and to AGROP respectively create embedded A-chains that conform to the conditions of relativized minimality. What allows subject raising over the object into the canonical subject position is unresolved in this analysis, but this issue, i.e., the issue of what exactly makes the canonical subject position the canonical subject position, is a persistent problem for linguistic inquiry, any resolution to which is far beyond the scope of this paper.

The fact that the lower AGRSP is associated with verb agreement morphology and that verb agreement morphology is associated with finiteness and that finiteness is associated with nominative case tentatively suggests that nominative case is checked in the lower AGRSP. The fact that indefinite subjects may appear lower than the canonical subject position, but definite subjects are marginal in other than the canonical subject position, as (29) shows, suggests that the higher AGRSP is more closely associated with definiteness than with case.

\[(29)\quad \text{daß <ein Mann / der Mann> in Salzburg <ein Mann / ??der Mann> ein Haus kauft} \]

that < a man / the man > in Salzburg < a man / ??the man > a house buys

“that a man/the man is buying a house in Salzburg”

These properties require a careful analysis in a separate forum. Important here is the fact that both subject positions are associated with agreement inflection on some head, i.e., they are both AGR projections.

In verb-second clauses, the verb has passed through both the lower AGRSP and the higher AGRSP \textit{en route} to its surface position in CP$_2$, leading one to expect that the verb will bear two subject agreement morphemes, contrary to fact. I follow Johnson (1990) in assuming that a two morpheme limit obtains for in-
flectional material in German. One of these morphemes is the tense morpheme (which is null in the present tense), and the other is a subject agreement morpheme. In verb-second constructions, the verb bears full agreement, unlike complementizers in the same position (see §2.1.2. & 2.1.3), indicating that the crucial agreement relation in verb-second clauses obtains in the low subject agreement projection, in which the subject chain is non-overt, which is the property that triggers full agreement. The two morpheme limit disallows an additional subject agreement morpheme from the higher AgrSP, yielding the paradigm in (30).

(30) a. arbeite-est b. arbeite-∅-est c. *arbeite-est-est
    work-past-2s work-pres-2s work-past-2s-2s

From the fact that the tense morpheme in (30) intervenes between the subject agreement morpheme and the verb stem, it follows on the basis of the Mirror Principle that TP intervenes between VP and the lower AgrSP. (28) may be expanded as follows:

(31) [CP₂ [ AgrSP [ CP₁ ⋮ [AgrOP ⋮ [ AgrSP [ TP [ VP ]]]]]]]

2.4 Additional structure in CP

In the two following sections I discuss evidence for additional structure above CP₂ in the diagram in (31).

2.4.1 WH-licensing

In the diagram in (31), C₁₀ moves to C₂₀ in the visible syntax. Sentences such as (32) show that in the dialects under review in the present study, there is a WH-landing site structurally above the surface landing site of the complementizer.

(32) Ich weiß nicht, was daß-ts ihr gesagt hab-ts
    I know not what that-2PL you said-2PL
    “I don’t know what you (PL) said.”

Traditionally, sentences such as (32) have been viewed as evidence that the doubly filled comp filter is not operative in the dialects of German in question. However, Koopman’s (1996) formulation of the doubly filled comp filter is not an economy principle that languages can choose to violate. It universally ex-
cludes the configuration in which both the specifier and head of a projection are overt at S-structure. Therefore, the possibility that the position occupied by the WH-element was in (32) is the specifier of the projection headed by the head to which the complementizer has associated is disallowed on theory internal grounds by the generalized doubly filled comp filter. Data from Dutch indicate on empirical grounds that such an analysis is incorrect. Zwart (1992) argues that in Dutch the element of “whether” is a WH-complementizer that occupies a head position structurally above the declarative complementizer position in sentences such as (33).

(33) Ik weet niet of dat Jan dat had gedacht
    I know not if that Jan that had thought
    “I don’t know whether Jan thought that.”

Zwart claims that of and dat represent a sequence of two adjacent heads heading a WH- and a topic-projection respectively. Further, Hoekstra (1993) provides counterarguments against the claim that the sequence of dat as in (33) is a single word occupying a single comp position C₀, rather than a sequence of two syntactically distinct heads. He points out for example that the sequence can be split up under coordination, e.g., (his (5a)):

(34) Ik vraag me af [of [dat Ajax de volgende ronde haalt en dat Celtic
    I ask myself of whether that Ajax the next round reaches and that
    verslagen kan worden]]
    Celtic beaten can be
    “I wonder whether Ajax will make it to the next round and
    whether Celtic can be beaten.”

(34) shows that of and dat are two independent heads, and that the WH-projection headed by of is structurally above the projection headed by the surface position of dat. In that German appears parallel to Dutch in this respect, since a WH-related element may precede the declarative complementizer daß, I propose that a WH-projection distinct from and hierarchically above the surface position of daß exists in German, as below.

(35) [WHP [CP₂ [AgrSP [CP₁ ⋮]]]]
2.4.2 Topic licensing

In keeping with the original observation of den Besten (1983) with which I began this analysis, that the complementizer in embedded clauses and the main verb in root clauses are associated with the same surface position, I propose that main verbs in root clauses also occupy CP₂, just as do complementizers in embedded clauses. The verb in this position may be preceded by exactly one constituent. Thus, preverbal WH-elements and topics exclude each other. While this dependency suggests that WH-elements and topics share the same S-structure landing site, namely WH, such an analysis fails to capture another dependency, namely the fact that only WH-elements, and not topics, may cooccur with a complementizer, as below.

(36) a. Was hat der Hans dem Professor geliehen?
what has the Hans the professor lent
“What did Hans lend the professor?”

b. Das Buch hat der Hans dem Professor geliehen.
the book has the Hans the professor lent
“The book, Hans lent to the professor.”

c. Ich frage mal was daß der Hans dem Professor geliehen hat
I ask once what that the Hans the professor lent has
“I’ll ask what Hans lent to the professor.”

d. *Ich glaube das Buch daß der Hans dem Professor geliehen hat
I believe the book that the Hans the professor lent has
(“I believe the book, that Hans lent the professor”)

(36d) is ungrammatical because a topic, unlike a WH-element, may not occur with a complementizer. This distinction between topics and WH-elements with respect to licitness of cooccurrence with complementizers is not captured in a phrase structure in which topics and WH-elements are licensed in the same position. There is a dependency between topics and complementizers, namely mutual exclusivity. There is no dependency between WH-elements and complementizers; they may cooccur freely. The dependency between complementizers and topics is evidence of a locality relation between the topic licensing position and the complementizer which does not obtain between the WH-licensing position and the complementizer.

On this basis I propose that topics are licensed in the S-structure landing site of complementizers, CP₂, and that complementizers, unlike verbs, are lexically non-topic-licensors. Thus, an element with the feature [+topic] cannot be licensed in a clause introduced by a complementizer. The proposal that comple-

mentizers are lexically non-topic-licensors is a somewhat ad-hoc formulation of a dependency that may relate to a deeper incompatibility between topicalization and subordination. It remains to be seen if this mutual exclusivity in German is typical elsewhere. In lieu of a more principled formulation, I will leave the matter here.

Verbs, in any case, license topics. As argued above, topics are licensed in CP₂. CP₂ is also the S-structure landing site of main verbs. Note that the generalized doubly filled comp filter, which prohibits the head and specifier of a projection from simultaneously containing lexical material, disallows the configuration in which the topic and verb both occupy CP₂ at S-structure. For this reason, topics cannot remain in their checking position. I claim that it is precisely this prohibition that characterizes the mutual exclusivity of WH-elements and topics in the initial position in verb-second constructions, even though they have different licensing positions. I claim that WH functions as an unselective A-bar landing site in non-WH-sentences. In topic constructions, the topic moves from its licensing position [SPEC-CP₂] into [SPEC-WH] to avoid a violation of the doubly filled comp filter, as in (37a) The topic’s monopolization of the WH-licensing position excludes WH-elements from the clause. Alternatively, a WH-element in [SPEC-WH] monopolizes the only alternative landing site for a topic in [SPEC-CP₂], forcing a violation of the doubly filled comp filter, as illustrated in (37b). For this reason, a WH-element and a topic may not cooccur, even though they have distinct licensing positions.

(37) a. Dem Hans hat Thomas das Buch gegeben.
the Hans has Thomas the book given
“Thomas gave Hans the book.”
b. *Was dem Hans hat Thomas gegeben?
   What the Hans has Thomas given
   ("What did Thomas give Hans?")

\[
\begin{align*}
\text{QP} & \quad \text{Wh} \\
\text{Was} & \quad \text{Wh} \\
& \quad [e] \quad *\text{DP} \quad C_2 \\
& \quad \text{Dem} \\
& \quad \text{Hans} \quad \text{hat}
\end{align*}
\]

In (37a), the topic *dem Hans has moved out of its licensing site [SPEC-CP₂],
the head of which is overt, into the specifier position of the inert WH-projection,
the head of which is non-overt, yielding a licit structure. In (37b), the topic *dem
Hans, which is illicit in its licensing site, the head of which is overt, cannot
move to the specifier position of the WH-projection, which is occupied by the
WH-element was. Hence the ungrammaticality of (37b).

The proposal that a [-wh] WHP is an unselective landing site into which topics
are forced by the generalized doubly filled comp filter resolves the apparently
paradoxical fact that WH-elements and topics are in complementary distribution
in spite of data as in (36) which represent evidence that the topic licensing
position and the WH-licensing position are syntactically distinct.

### 2.4.3 Coordinating conjunctions

A verb-second clause may be introduced by a so-called coordinating con-
junction such as denn or aber, as described in §2.1.3. I will discuss denn in
what follows; aber has the same distribution. Denn is semantically parallel to the
English particle for meaning loosely because.

(38) Ich habe Maria getroffen, denn wir waren beide in Rom.
I have Maria met *denn we were both in Rome
"I met Maria, for we were both in Rome."

Denn, like for, denotes a relation of indirect causation between the clause
following denn and the clause preceding. Dann may also introduce a clause with
a topic or a WH-element in the pre-verbal position.

(39) a. Ich gehe nicht in den Zoo, denn vor Tieren habe ich Angst.
   I go not to the zoo, denn of animals have I fear
   "I'm not going to the zoo, for I'm afraid of animals."

b. Ich habe nur Milch gekauft, denn was soll ich sonst
   gekauft haben?
   I have only milk bought, denn what should I else bought have
   "I only bought milk, for what else should I have bought?"

The position which denn occupies is therefore to the left of the S-structure
topic- and WH-landing site WhP. By Kayne's (1994) LCA, which I presuppose
throughout this paper, this precedence relation indicates that a node dominating
denn, which I assume in lieu of countervidence to be the node immediately
dominating denn, occupies a position asymmetrically c-commanding and therefore
hierarchically superior to WhP. These considerations indicate that the form of
the complementizer superstructure in the German dialects under examination
in the present study is the following, in which ConP (conjunction phrase)
houses denn and aber.

(40) [ ConP [ WhP [ CP₂ [ AGRSP [ CP₁ ...] ] ] ] ]

Subjects occupy AGRSP. Complementizers are base generated in CP₁ and
move to CP₂ visibly. In lieu of a complementizer, the verb main verb moves to
CP₂ visibly. WH-elements are licensed in WhP. Topics are licensed in CP₂ and
move to WhP visibly to avoid a doubly filled comp violation in CP₂. Denn or
aber, and possibly other particles, may or may not appear in ConP without af-
fearing subordinate material.

### 3. Structure reiteration

In the second part of this paper, I will show that the structure in (40) instan-
tiates itself twice in main clauses in German. It appears once clause initially, as
discussed hitherto, and once clause medially, above VP. The argument begins
with the observation that denn and aber may appear clause medially.
3.1 Clause medial ConP

As distinguished from its clause initial instantiation as a coordinating conjunction, denn may appear clause medially as a so-called 'modal particle'. The modal particles are a set of lexical items with a fixed clause medial distribution which fulfill certain (notoriously difficult to formalize) illocutive or discourse pragmatic functions. Modal particles include denn (indirect causation), ja (emphasis), doch (affirmation or focus), schon (affirmation), eigentlich "actually", eh "anyway" and others. I will discuss only denn in what follows. See Thurmaier (1989) for a more complete discussion. As a modal particle (in which usage it is distinct but similar to its usage as a coordinating conjunction), denn signals that the reason for the utterance is contextually dependent. The examples below demonstrate.

(41) a. Wer ist denn nach Innsbruck mitgefahren?
   who is denn to Innsbruck with-driven
   "So who went with you to Innsbruck?"

b. Ich habe nur Milch gekauft. Was soll ich denn sonst gekauft haben?
   I have only milk bought what should I denn else bought have
   "I only bought milk. After all, what else should I have bought?"

In both cases, denn means that there is a specific reason for the question containing the particle denn, and that this reason is evident from the context. (41a) is natural in a context in which the addressee has been discussing the fact that a certain friend could not travel to Innsbruck with himself and others, but has not mentioned who the others are, and the speaker wishes to know who did travel to Innsbruck with the addressee. Denn indicates that the question arises because an aspect of the discourse representation is underspecified in that a certain set of individuals is unidentified. (41b) is natural in a context in which the addressee has asked if the speaker bought only milk. Denn indicates that the question is a response to the implication that the speaker should have bought something else in addition to milk. In each case, denn ties the question to an aspect of the discourse context.

In declarative clauses, the semantic contribution of denn to the sentence is as in WH-questions like those in (41), but its phonological form is different. Denn is spelled out as dann in declarative clauses. This dependency has the appearance of a polarity effect mediated by force.

(42) a. Thomas ist dann nach Innsbruck mitgefahren.
   Thomas is dann to Innsbruck with-driven
   "So Thomas went with us to Innsbruck."

b. Ich habe denn Milch gekauft
   I have dann milk bought
   "So I bought milk."

In each case, dann connects the utterance to an aspect of the previous discourse and indicates that the utterance is a response to an unresolved point in the discourse context.

Further, denn may appear both clause initially and clause medially simultaneously, as in (43a). The fact that no cooccurrence restrictions hold between clause initial and clause medial denn suggests that the position occupied by clause medial denn is not related at S-structure to the position occupied by clause initial denn. They are distinct positions. In light of these data, I propose that denn clause medially occupies a ConP distinct from clause initial ConP, as illustrated in (43) b.

(43) a. Natürlich habe ich nur Milch gekauft, denn was soll ich denn sonst gekauft haben?
   naturally have I only milk bought denn what should I denn else bought have
   "Of course I only bought milk, for what else should I have bought, then?"

b. [ConP denn was soll ich [ConP denn sonst gekauft haben ]]

Finally, note that parallel to the clause initial ConP, the clause medial ConP may also house aber.

(44) a. Thomas ist aber nach Innsbruck mitgefahren.
   Thomas is however to Innsbruck with-driven
   "However, Thomas went with us to Innsbruck."

b. Ich habe aber Milch gekauft.
   I have however milk bought
   "However, I bought milk."

3.2 Clause medial WnP

A clause medial conjunction may immediately precede a WH-element, as in (45).
Wer hat denn was gekauft?
who has denn what read
"Who bought what?

(45) illustrates an apparent instance of WH in situ. Since the clause initial WH-landing site is monopolized by the subject WH-phrase wer, the object WH-phrase was seems to remain in the canonical object position. However, data which follow indicate that the position occupied by was in (45) is not the canonical object position, but rather a clause medial WH-landing site.

Denn may be separated from a following non-WH-object by adverbial material, as in (46a & c), but it may not be separated from a following WH-object by adverbial material (when controlling intonation; see below), as (46b & d) show.

Wer hat denn <das Buch> gestern <das Buch> gelesen?
who has denn <the book> yesterday <the book> read
"Who read the book yesterday?"

Wer hat denn <was> gestern <*was> gelesen?
who has denn <what> yesterday <*what> read
"Who read what yesterday?"

Wer hat denn <die Maria> gestern <die Maria> angerufen?
who has denn <the Maria> yesterday <the Maria> called
"Who called Maria yesterday?"

Wer hat denn <wen> gestern <*wen> angerufen?
who has denn <who> yesterday <*who> called
"Who called who yesterday?"

A non-WH-object may directly follow clause medial denn. A non-WH-object may also alternatively appear lower, following adverbs such as gestern. A WH-object does not have the option of appearing lower than the position directly following denn. Example (46) shows that while a lower object landing site exists than the position directly following denn, WH-objects do not appear in it. These data, which show that the distribution of WH-elements in situ is restricted, indicate that the position directly following clause medial denn is, in double-WH-constructions, a WH-licensing position for non-subjects.

Intonation is crucial with regard to (46). When the object WH-element bears stress, it may appear in positions lower than the position directly following clause medial denn, for example when it bears emphatic stress (see below). Confoundingly, the object normatively bears main stress in unmarked sentence intonation. The judgments in (46) reflect abstraction away from intonation. The judgment is more salient in, for example, contexts where the clause medial WH-

(47) a. Wer hat denn <Hans> das BUCH <Hans> gegeben?
who has denn <Hans> the book <Hans> given
"Who gave Hans the book?"

b. Wer hat denn <wen> das BUCH <*wen> gegeben?
who has denn <who> the book <*who> given
"Who gave who the BOOK?"

Conversely, when a medial WH-element itself bears emphatic stress it is grammatical in positions other than the position directly following clause medial denn. This fact points to a parallel between movement to the clause initial WH-position and movement to the clause medial WH-position which supports the proposal of a clause medial WH-position, namely that neither operation is obligatory at S-structure in echo questions. Echo questions represent instances of 'genuine' WH in situ, and are characterized by emphatic stress on the WH-word and rising intonation from the WH-word to the end of the string. Without emphasis and rising intonation, the word order displayed in echo questions is illicit. Instances of WH in situ in this sense are illustrated below.

A: Gestern ist Thomas angekommen.
yesterday is Thomas arrived
"Thomas arrived yesterday."

B: Gestern ist WER/*wer angekommen?
yesterday is WHO/*who arrived
"WHO arrived yesterday?"

Wer hat denn gestern abend 'Das Kapital' gelesen?
who has denn yesterday evening the Capital read
"Who read 'Capital' last night?"

Wer hat denn gestern abend WAS/*was gelesen?
who has denn yesterday night WHAT/*what read
"Who read WHAT last night?"

In (48a [B]), the WH-element receives emphatic stress and the intonation rises at the WH-element. Correspondingly, the WH-element is licit in a position other than the WH-licensing position [SPEC-WHP], namely in the canonical subject position. A non-eminisized WH-element without rising intonation is illicit when it does not occupy WHP. In (48b [B]), the object WH-element WAS does not oc-
cupy the position directly following denn. It is separated from denn by the
adverb gestern abend. This distribution is licensed, as in (48a [B]) by emphasis
on the WH-element and rising intonation. A non-emphasized WH-element without
rising intonation is illicit in the position it appears in in (48b [B]).

On the basis of the fact that emphasis and rising intonation at the WH-element
license a WH-element in situ, and that the distribution of object WH-elements in
echo questions and unmarked contexts is distinct, I conclude that object WH-
elements in unmarked contexts, for example (45) and (46b & d), are not in situ. Rather, the object WH-element’s distribution in (45) and (46) is derived by
movement. These data therefore support the proposal that the surface position of
object WH-elements in double-WH-constructions is a specialized WH-landing site,
i.e., WhP. According to this proposal, the phrase structure of German sentences
as discussed to this point is as follows.

(49)  [ CONJ [ WhP [ CP2 [ AgrSp [ CP1 ... [ CONJ [ WhP ...

3.3 Clause medial CP

Above, I argued that the distinction in the distribution of object WH-elements
in double-WH-constructions in echo questions and non-echo questions indicates
that the unmarked distribution of object WH-elements in double-WH-construc-
tions is derived. On the basis of the fact that subject WH-elements in echo ques-
tions occupy the canonical subject position, I propose that object WH-elements in
echo questions occupy the canonical object position. The position occupied by
the object WH-element in (48b [B]) is the canonical object position, AGROP.

That clause medial WhP and AGROP are not immediately adjacent is demonstrat-
ed by the following example.

(50)  Wer hat denn welchem Studenten gestern das Buch gegeben
  who has denn which student yesterday the book given
  “Who gave which student the book yesterday?”

In the example above, welchem Studenten occupies clause medial WhP, on the
basis of the discussion in 3.2. Das Buch occupies AGROP, on the basis of the
parallel between its position in the example above and the position of the WH-
object in situ in (48b [B]), which I claimed occupies AGROP. At least one projec-
tion intervenes between clause medial WhP and AGROP, namely the projection
housing gestern. Various other constituents may appear in place of gestern, as
demonstrated below.

(51)  Wer hat denn welchem Studenten gestern / im Kaffeehaus /
ohne den Professor zu verständigen / trotz Empfehlung des
Assistenten das Buch gegeben?
  who has denn which student yesterday / in-the coffeehouse /
  without the professor to inform / in-spite-of recommendation
  the assistant the book given
  “Who gave the book to which student yesterday/in the
cafe/without informing the professor/in spite of the recom-
mendation of the assistant?”

The position in question may be occupied by a temporal (gestern), locative (im
Kaffeehaus), or propositional (ohne den Professor zu verständigen) modifier.

It is further the case that all of the possible interveners between the WH-
phrase and the object may occur in one sentence:

(52)  Wer hat denn welchem Studenten gestern im Kaffeehaus
  ohne den Professor zu verständigen trotz Empfehlung des
  Assistenten das Buch gegeben?
  who has denn which student yesterday in-the coffeehouse
  without the professor to inform in-spite-of recommendation
  the assistant the book given
  “Who gave the book to which student yesterday in the cafe
  without informing the professor in spite of the recommendation
  of the assistant?”

(52) suggests that a multitude of positions intervene between clause medial WhP
and the surface position occupied by the object in e.g., (50). However, I claim
that the string gestern im Kaffeehaus ohne den Professor zu verständigen trotz
Empfehlung des Assistenten in (52) (which I will henceforth abbreviate as
gestern...) is a single constituent (albeit containing several smaller constituents)
occupying a single position between WhP and the surface object position.
Evidence for this claim comes from the fact that this string may appear in the ini-
tial position in a verb-second clause.

(53)  Gestern im Kaffeehaus ohne den Professor zu verständigen
trotz Empfehlung des Assistenten habe ich das Buch dem
Thomas gegeben.
  Yesterday in-the coffeehouse without the professor to in-
form in-spite-of recommendation the assistant have I the
book the Thomas given
"Yesterday in the coffeehouse, without informing the professor, in spite of the recommendation of the assistant, I gave the book to Thomas."

The verb-second phenomenon is characterized by the requirement that exactly one constituent precede the verb, and no more than one. The grammaticality of (53) therefore indicates that the string preceding the verb habe is one constituent. Like a topic, furthermore, it is incompatible with a preverbal WH-element.

(54)  * Gestern im Kaffeehaus hast du getrunken?  yesterday in-the coffeehouse what have you drunk ("What did you drink yesterday in the coffeehouse?")

The preverbal string in (53) is the same string that intervenes between the WH-phrase and the object in (52). I propose that in both cases the string is a single constituent occupying a single A-bar position. Since the elements that occupy this position do not as a group consistently affect a particular semantic parameter such as location or time frame, I assume that this position is an unspecialized A-bar landing site for elements that originate within a thematic configuration elsewhere in the syntax, i.e., it is a CP.

A sentence adverb may follow the string intervening between the WH-phrase and the object, and precede the object, as below.

(55)  Wer hat denn welchem Studenten gestern... vorübergehend das Buch geliehen?
       who has denn which student yesterday... temporarily the book lent
       "Who temporarily lent which student the book yesterday...?

Vorübergehend belongs to the class of adverbs, also including e.g., notwendigerweise "necessarily", kurz "briefly", etc. In English, it is the class of elements morphologically characterized by the -ly suffix. Vorübergehend in (55) does not belong to the constituent gestern... as evidenced by the fact that it may not cooccur with the constituent gestern... in the preverbal position in verb-second clauses:

(56)  <vorübergehend> gestern... <vorübergehend> habe ich dem Thomas <vorübergehend> das Buch geliehen.

Vorübergehend may not appear with the string gestern... or any part of it preverbally in verb-second clauses. This fact indicates that vorübergehend is not part of the constituent gestern... As expected in light of this conclusion, vorübergehend may not intervene between any two elements in the constituent gestern... clause medially, as illustrated below.

(57)  Wer hat denn welchem Studenten gestern <vorübergehend> im Kaffeehaus <vorübergehend> ohne den Professor zu verstehengen <vorübergehend> trotz Empfehlung des Assistenten <vorübergehend> das Buch geliehen?
       who has denn which student yesterday <temporarily> in-the coffeehouse <temporarily> without the professor to in-form <temporarily> in spite of recommendation the assis-tant <temporarily> the book lent
       "Who temporarily lent the book to which student yesterday in the cafe without informing the professor in spite of the recommendation of the assistant?"

(56) and (57) show that the position occupied by the sentence adverb vorübergehend in these cases is distinct from the position occupied by the string gestern... In addition to the general A-bar position following clause medial WHP, therefore, there is an adverb position as well. In (57), the general A-bar position is occupied by the string gestern... and the adverb position is occupied by the sentence adverb vorübergehend. These considerations indicate that the phrase structure of German as discussed hitherto is as illustrated below. I note the general A-bar position as 'CP', and the adverb position as 'ADV'.

(58)  [ CONI] [ WHP [ CP₂ [ AgreSP [ CP₁ ... ] ] CONI] [ WHP ... ] [ CP ... [ ADV ... ]]

3.4 Clause medial AGRP

A sentence adverb such as vorübergehend may not precede modifiers of the type represented by the string gestern... in (57). (59) is therefore ungrammatical.
Wer hat denn welchem Studenten vorübergehend gestern... das Buch geliehen?

who has denn which student temporarily yesterday... the book lent

("Who temporarily lent which student the book yesterday?"

Elements in the clause medial CP and AdVP in (58) therefore have a fixed distribution with respect to each other. The ungrammaticality of (59) means that the ordering of the CP occupied by *gestern... and the AdVP occupied by vorübergehend is strict. The fact that vorübergehend can move in general, as demonstrated by its acceptability in the clause initial position in verb-second clauses, but may not appear in an intermediary position between welchem Studenten and gestern... indicates that no such position is available as a landing site. Clause medial WhP and CP are therefore adjacent, and vorübergehend occupies AdVP.

It is clear that the object may follow AdVP at S-structure, as in sentences such as (55), and (60) below. The object may also intervene between the clause medial CP and AdVP, as shown in (60).

Wer hat denn welchem Studenten gestern <das Buch> vorübergehend <das Buch> geliehen.

who has denn which student yesterday <the book> temporarily <the book> lent

"Who gave which student the book yesterday?"

In (60), the object may either precede or follow the adverb vorübergehend, which I have argued to occupy AdVP. This fact may mean either that the position of the adverb is stationary while the object has the choice of appearing before or after the adverb, or it may mean that the object is stationary while the adverb has the choice of appearing before or after the object (discounting the possibility of some form of opaque complexity in the ordering relation). I will argue for the former proposal, that the position of the adverb is fixed in AdVP and an object landing site lies between the clause medial CP and AdVP, on the basis of the fact that the alternation affects the semantic character of the object but not the adverb, indicating that the alternation operates on the object, not on the adverb.

The effect relates to the specificity of the object. When das Buch in (60) is replaced by the indefinite DP ein Buch "a book", a difference of interpretation arises with respect to whether the object appears before or after the adverb. Compare ein Buch in each of its two possible surface positions in (61).

Wer hat denn welchem Studenten gestern <ein Buch> vorübergehend <ein Buch> geliehen?

who has denn which student yesterday <a book> temporarily <a book> lent

"Who temporarily lent which student a book yesterday?"

When the object ein Buch occurs to the right of the adverb vorübergehend, it must be interpreted non-specifically. A specific interpretation, in which the DP refers to a certain book available within the discourse context, is unavailable or extremely awkward when the object occupies the post-adverb position. Conversely, when the object appears to the left of the adverb vorübergehend, the specific interpretation is both available and preferred. The position of the object with respect to AdVP therefore correlates with specificity.

There is no corresponding effect on the interpretation of the adverb. I assume a priori that when an alternation involving two constituents semantically affects one and not the other, then it is reasonable to assume that the semantically affected constituent is the target of the transformation governing the alternation, and the semantically unaffected constituent is not involved. Since the adverb is unaffected by the alternation, I conclude that the transformation operates only on the object. The ordering alternation illustrated in (61) is therefore a manifestation of a movement operation applied to the object. There is therefore an object landing site to the left of the position housing sentence adverbs such as vorübergehend and to the right of the position housing elements such as those in the string gestern... in (57), in addition to the position below both clause medial CP and AdVP that an object may occupy as shown in (60) and (61).

Mahajan (1990) claims that the specific interpretation of a DP correlates with its occurrence in an agreement projection. Objects in AgrOP receive a specific interpretation, whereas objects lower than AgrOP do not. On the basis of Mahajan's proposal on the relation between specificity and syntactic distribution and on the basis of the correlation between the position of the object and the interpretation of specificity in German demonstrated in (61), I conclude that the German object landing site correlated with specificity, namely the position to the left of sentence adverbs such as vorübergehend, is the canonical object position AgrOP. The object is in AgrOP in the example below.

Wer hat denn welchem Studenten gestern ein Buch vorübergehend geliehen?

who has denn which student yesterday a book temporarily lent

"Who temporarily lent which student a book yesterday?"
In (62), the WH-phrase welchem Studenten occupies the clause medial WHP subjacent to the clause medial CP. Gestern occupies the clause medial CP, ein Buch occupies AGRP, and vorübergehend occupies AdvP. I demonstrated with examples (52), (53), (56) and (57), that whenever material grammatically intervenes between a clause medial WH-element and a high object, then the intervening material forms a single constituent occupying the clause medial CP. Examples where intervening material does not form a single constituent, as evidenced by the incompatibility of the string in question in the clause initial position in a verb-second clause, as in (59) compared to (56), are consistently ungrammatical. Impossibility of intervening material indicates lack of an intervening landing site. I conclude that the clause medial CP and the canonical object position AGRP are adjacent, the former preceding the latter, as illustrated below.

\[ \text{[ConjP [WHP [CP₁ [AGRP [CP₂ [WHP [CP [AGRP ... [AdvP ...]} \]

3.5 Low clause medial CP

It is less clear that AGRP is adjacent to AdvP. Examples such as (64) indicate otherwise.

\[ \text{Wer hat denn welchem Studenten gestern <das Buch> im Kaffeehaus <das Buch> ohne den Professor zu verständigen vorübergehend geliehen who has denn which student yesterday <the book> in-the coffeehouse <the book> without the professor to inform temporarily lent} \]

"Who temporarily lent which student the book yesterday in the cafe without informing the professor?"

Though the object das Buch may intervene in a string that was demonstrated in examples (52) and (53) to act as a constituent, in the case when the object intervenes, as in (64), the string is not a constituent. The object may not intervene when the string appears in the initial position of a verb-second clause, as below.

\[ \text{Gestern <*das Buch> im Kaffeehaus <*das Buch> ohne den Professor zu verständigen habe ich dem Thomas <*the book> vorübergehend geliehen.} \]

Yesterday <*the book> in-the coffeehouse <*the book> without the professor to inform have I the Thomas <*the book> temporarily lent

"I temporarily lent Thomas the book yesterday in the cafe without informing the professor."

A string preceding the main verb in a verb-second clause must represent exactly one constituent. The fact that the object may not appear in the preverbal string in (65) shows that the object does not form a constituent with the rest of the string. Nor does it form a constituent with any part of the string, for example the portion ohne den Professor zu verstehender, as demonstrated below.

\[ \text{[ConjP [WHP [CP₁ [AGRP [CP₂ [WHP [CP [AGRP [CP ...]} \]

\[ \text{*Das Buch ohne den Professor zu verstehender habe ich dem Thomas geliehen.} \]

the book without the professor to inform have I the Thomas lent

("I lent Thomas the book without informing the professor.")

In (64), therefore, the object does not form a constituent with the material that follows it. Demonstrably, therefore, a separate constituent intervenes between the object and the adverb vorübergehend.

This constituent is of the same type as that occupying the clause medial CP. As (64) shows, what may appear as a string or as part of a string preceding the object in AGRP may appear as a string or as part of a string following the object, but preceding sentence adverbials such as vorübergehend. These facts show that a position with the identical character of the clause medial CP, i.e., another CP, exists directly subjacent to AGRP and superjacent to AdvP. These observations indicate the following phrase structure for German finite clauses:

\[ \text{[ConjP [WHP [CP₁ [AGRP [CP₂ [WHP [CP [AGRP [CP ...]} \]

where AdvP discussed above and the additional subject agreement projection discussed in §2.3.2, as well as TP and VP, lie below the rightmost CP in (67). A discussion of the relation of AdvP, the low subject agreement projection, and TP to the template exemplified in (67) or the possibility of material intervening between the two instantiations of the template would take the present study somewhat afield of its original intent. I therefore leave these issues for future work.
4. Conclusion

The hypothesis investigated in the preceding sections is that syntactic structure reiterates within clauses. (67) shows that a weak version of this hypothesis holds for finite clauses in dialects of German displaying complementizer agreement. The strong version of the hypothesis, that syntactic structure in German consists exclusively of iterations of the template below or something close to it, obviously remains to be investigated.

\[ (68) \quad [\text{CONF} [\text{WHP} [\text{CP} [\text{AGR} \text{P} [\text{CP}]]]]] \]

If there is truth to the strong version of the hypothesis, then the occurrence of functional projections in German is restricted by their distribution in a fixed template. The template in (68) represents a strict typology of functional projections.

The impact of such a typology is manifold. For example, I argued in §2.3.1 that AGR is not split, but rather that a single agreement projection is sensitive to all φ-features of its specifier, though it may not reflect all of them morphologically. The unified-AGR hypothesis relates the features person, number and gender to a single category, i.e., it typologizes them in a classification system well known to linguistic inquiry, namely syntactic category. The idea that functional projections occur in a template disallows analyses in which every feature may head its own syntactic projection and forces functional projections to be somewhat general with respect to their licensing properties. This generalization of licensing properties in turn groups features relevant to grammar together according to their licensing site, resulting in a typology of features on the basis of distribution. The existence of such a typology answers the intuition that for example features such as person, number and gender ‘go together’ in a sense that excludes for example [+wh].

Further, Abraham (1995) has proposed that the semantic value of a particular functional category may be related to other instantiations of the same category through operator movement. He claims that sentence operators which determine illocutive force and which are licensed in a complex complementizer superstructure at LF, appear at S-structure as clause medial modal particles. The positions in which the clause medial modal particles are fixed with respect to each other mirror the order of their LF licensing positions in the left periphery. Specifically, Abraham claims that the complementizer superstructure in Germanic consists of three positions—C1, C2, and C3, which function as LF licensing positions for the modal particles, and that these three positions recur clause medially. The modal particles have a fixed distribution within the clause medial instantiation of the complex CP, as below.

\[ (69) \quad [\text{C1} [\text{C2} [\text{C3} \ldots [\text{C1} [\text{C2} [\text{C3} \ldots] \ldots] \ldots] \ldots] \ldots] \]

At LF, the modal particles raise from their base position in one of the three clause medial comp positions to the corresponding position in the clause initial complementizer superstructure. They raise in order to fulfill their operator function by occupying a position with sentential scope that determines illocutive properties of the utterance. They are parallel to WH-operators in this respect, which raise from a thematic position to a specialized WH-landing site in order to fulfill properties of the landing site that relate to the determination of sentence type. Abraham’s proposal that the recurrence of syntactic structure is connected to semantic functions relating iterations of a category sheds some light on the semantic ramifications of reiterative syntax.

In addition to theories of syntax and semantics, reiterative syntax has utility in the theory of learnability as well, as discussed in §1. The utilization of the same syntactic template in different regions of a sentence reduces the number of basic building blocks of which the sentence consists while still allowing for a great deal of fine structure. It also significantly narrows the spectrum of possible linear combinations of syntactic categories. In the strong version of the hypothesis, it eliminates variation in the ordering of projections as a parameter from the grammar. Thus, in addition to constraining functional projections by type, as mentioned above, it constrains their ordering also. Such restrictions on the number of options available in the process of language acquisition simplify the task of the language learner. The innateness of syntactic templates therefore has the functional utility of reducing complexity in the grammar in several respects. Whether natural language capitalizes on this utility generally remains to be shown. But Poeppel & Wexler’s (1993) experiments indicating that clause structure is innate, the results of the present study showing that German clause structure includes reiterations of large blocks of structure, and Abraham’s conclusions suggesting that the reiteration of syntax may have semantic relevance, lend credence to the hypothesis that natural language exploits the utility of reiterative syntax generally. The present study is limited to the attempt to show that syntactic structure reiterates within clauses in German. Extentions of this idea to other clause types and other languages, as well as to semantics and learnability, remain to be investigated. This paper is intended to provide some groundwork for further inquiry into these matters.
REFERENCES


