DECONSTRUCTING THE CONSTRUCT*

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1. INTRODUCTION

In the recent decade, Construct State nominals (henceforth CSN) in Hebrew and Arabic have been the focus of much discussion and research, resulting in many important insights. Originating with a proposal of Ritter (1987, 1988) many analyses of that construction seek to tie (at least some of) its properties to raising of N to D (cf. Ritter, (1987, 1988, 1991); Fassi Fehri (1988, 1989, 1994); Ouhalla (1990, 1991); Hazout (1990); Muhammad (1988); Duffield (1992); Siloni (in press, 1994); among others). The purpose of this paper is twofold. First, I will review and evaluate the major insights behind the N-to-D hypothesis, showing that while some of them have led to an increased understanding of CSN, the N-to-D hypothesis does not, in fact, achieve the major tasks which its proponents claim it to achieve. I will conclude that while the operation of N-to-D cannot be directly excluded, based on word order, there is no direct evidence for its existence and the word order phenomena which such an account seeks to explain must be accounted for in some other way.

In the second part of the paper I will resurrect the N-to-D analysis, this time not to account for properties of CSN, but rather, as a well-formedness condition on the realization of ±definite features. I will propose that in Semitic languages, ±definiteness is a feature base-generated on the N stem (cf. Borer (1988); Siloni (1994)), while the D head itself is unspecified for such a feature, inheriting it from a moved N. I will further argue that the feature-nature of Definiteness in Semitic allows for the base-generation of a nominal stem without it, and that such a state of affairs leads, by independent principles, to the formation of CSN. The absence of CSN in, e.g., the Germanic languages, correlates with the fact that in these languages, ±definitness is not a feature on the N stem, but rather, a feature of the head D itself.

This paper is organized as follows: In section 2 I discuss some of the properties of CSN, and compare them to those of free nominals (henceforth FN). In section 3 I review the advantages and disadvantages of the preliminary proposals made by Ritter (1987, 1988) and others to account for the properties of CSN. Modifications of these proposals, based on earlier criticism, are reviewed in section 4.

In section 5 I turn to the Embedded VP Hypothesis: the hypothesis advanced in Hazout (1990) and Borer (1991) that process nominals (Complex Event Nominals, in the

K. Johnson and I. Roberts (eds.), Beyond Principles and Parameters. 43 -89.

terminology of Grimshaw (1990)) contain a fully projected VP. This hypothesis in turn will serve as a jumping board for a syntactic comparison between process nominals and non-process nominals, the latter shown to have a clearly different syntactic structure, regardless of whether they are CSN or FN. Given this differing structure, there is no motivation from word order for N raising to D or to any other functional projection.

In section 6 I investigate the word properties of CSN, concluding that it involves syntactic incorporation, and propose a set of conditions on well-formed incorporation, using Grimshaw's (1991) notion of Extended Projections as a stating point.

In section 7 I turn to an analysis of CSN. Assuming that the N head of CSN is not lexically marked as ±definite, and must acquire such marking to become well formed, it is shown that this minimal assumption, coupled with otherwise motivated principles of the grammar, suffices to derive all the properties of CSN, as distinct from those of FN.

2. PROPERTIES OF CSN AND OF FN:

As is quite well-known, CSN have the properties in (1), illustrated in (2)-(7):

(1) **Properties of Construct State Nominals (CSN):**

A. Strictly right branching, head first, apparent NSO order, (but see sections 5, 6). (2)

B. The head of a CSN cannot be directly modified by a determiner or by an adjective. (3)

C. The ±definite value of the rightmost branch of a CSN is associated with each N in the CSN and the CSN as a whole (henceforth Definiteness Spreading). (4)

D. Adjectival modification of the head or the entire CSN follows the (last) right branch. (5)

E. If more than one N in CSN is modified by an adjective, the configuration is nested. (6)

F. Heads are bound morphemes: they do not bear main stress, and a variety of word-internal phonological rules apply to them. (7)

G. CSN strategy is available for compound formation. (8)

(2) a. [delet [beit [morat [ha-kita]]]]
door house teacher the-class
'the door of the house of the teacher of the class'

b. [harisat [oyvey [ha-miStar]]] 'et ha-'ir
destruction enemies the-regime OM the-city
'the enemies of the regime's destruction of the city'

c. [tipul [Siltonot ['ayarat [ha-mehagrim]]]] ba-ba'aya
treatment authorities town the-immigrants in-the-problem
'the authorities of the immigrants' town treatment of the problem'

(3) a. (*ha-)delet (*ha-)beit (*ha-)morat (ha-)kita
(*the)door (*the)house (*the)teacher (the)class

b. delet (*rexava) beit (*lavan) morat (*vatika) ha-kite (ha-xadaSa)
door (*wide) house (*white) teacher (*senior) the-class (the new)

(4) a. beit more
'a house of a teacher'

b. beit ha-more
'the house of the teacher'
*'a house of the teacher'
*'the house of a teacher'

(5) delet beit morat ha-kite ha-yafa
door-f house-m teacher-f the-class-f the-beautiful-f

a. the beautiful door of the house of the teacher of the class
b. the door of the beautiful teacher of the class
c. the door of the house of the teacher of the beautiful class

(6) a. kis'ot ha-kita ha-xadaSa ha-civ'onim
chairs-m-pl. the-class-f the new-f the-colorful-m-pl.

b. *kis'ot ha-kite ha-civ'onim ha-xadaSa
chairs-m-pi. the-class-f the-colorful-m-pl the new-f

(7)

	CSN	FN
a.	beit more	bayit Sel mora
	house teacher	house of teacher
	'a teacher's house'	
b.	morat kita	mora(a) Sel kita
	teacher class	teacher of class
	'a teacher of a class'	

(8) beit xolim
house sick-pi.
'hospital'

beit sefer
house book
'school'

vex din
editor law
'lawyer'

etc.

Many, but not all, of these properties contrast with those exhibited in free nominals (FN), constructed roughly on a par with the English possessive construction, and containing a possessive preposition, *Sel*, mediating between the *possessed* and the *possessor*:

(9) **Properties of FN**:

A. Head first as well, apparent NSO order, but see comment following (IA)). (10)

B. The head must be directly marked for ±definiteness.(10)

C. The ±definite value is strictly associated with the N marked as such (no Definiteness Spreading). (11)

D. Adjectival modification of the head follows the head directly. (12)

(10) a. ha-delet Sel ha-bayit Sel ha-more Sel ha-kita
the door of the house of the-teacher of the-class

b. ha-harisa Sel ha-oyvim Sel ha-miStar 'et ha-'ir
the-destruction of the-enemies of the-regime OM the-city

c. ha-tipul Sel ha-Siltonot Sel ha-'ayara Sel ha-mehagrim
the-treatment of the authorities of the town of the immigrants

ba-ba'aya
in-the-problem

(11) a. ha-bayit Sel ('eyze) mora
the-house of (some) teacher
'the house of (some) teacher'

b. bayit Sel ha-mora
house of the-teacher
'a house of the teacher'

(12) a. ha-delet ha-yafa Sel ha-bayit Sel ha-mora
door-f the-beautiful-f of the-house-m of the-teacher-f

b. ha-delet Sel ha-bayit Sel ha-more ha-yafa
door-f of the-house-m of the-teacher-f the-beautiful-f

3. ADVANTAGES OF THE N-TO-D ANALYSIS.

Ritter (1987,1988) as well as subsequent treatments of CSN are motivated by an attempt to give a unifying account for at least three of the most salient properties of CSN, as listed in (13):

(13) A. The strict right branching nature of the construction
B. The NSO word order
C. The prohibition on direct modification of the head.

In a variety of executions which differ slightly but not fundamentally, it has been proposed that CSNs such as (2b-c) are base-generated in essence as in (14a). In (14a), note, the word order inside the NP is SNO, as is expected. In that structure, N raises to D, accounting for the NSO word order. Further, under the assumption (again, slightly differently executed in different accounts) that the movement of N to D blocks the overt realization of a determiner, the impossibility of direct modification of the head by the definite article follows. The right branching of the construction follows as well, resulting in the S-structure in (14b):

(14) a. $[_{DP}\ [_{D}\ \varnothing\ [_{NP}$ **ha-oyvim** $[_{N}$ **harisat** **'et ha-'ir]]]]**
the-enemies destruction OM the-city

b. $[_{DP}\ [_{D}$ **harisat** $[_{NP}$ **ha-oyvim** $[_{N}\ t_{N}$ **'et ha-'ir]]]]**
destruction the-enemies OM the-city

The account is prima facie an attractive one, benefitting from the parallelism between the structure of clauses and the structure of nominal projections, and rejecting it should be done only if the properties associated with CSN can be otherwise accounted for. It should be mentioned, however, that two important properties of CSN are not directly accounted for by the structures in (14a-b) and require additional mechanisms: the first is Definiteness Spreading. Addressing this question, Hazout (1990) observes that in English as well, a definite subject of NP causes the entire NP to be interpreted as definite, while an indefinite subject causes the entire NP to be indefinite:

(15) a. John's book (interpreted as a definite book)
b. a student's notebook (interpreted as an indefinite notebook)

Definiteness Spreading in CSN, Hazout reasons, should be explained on a par.

The analogy between the English structure and Hebrew one, however, is not straightforward. Plausibly, the genitive marker *'s* in (15) is the head of D, and *John/student* are in [Spec, DP], thus triggering ±definiteness by Spec-Head agreement, as in the structure in (16):

(16) a. $[_{DP}$**John**$_2$ $[_D$ **'s** $[_{NP}$ t_2 **book]]]**

b. $[_{DP}$ **a student**$_2$ $[_D$ **'s** $[_{NP}$ t_2 **notebook]]]**

In the CSN structure in (14b), on the other hand, the subject of the NP clearly cannot be in [Spec,DP], or the necessary word order configuration would not emerge. Nevertheless, it is possible that an LF operation raises that subject from [Spec,NP] to [Spec,DP], thereby rendering the entire expression ±definite as desired. Such LF raising is explicitly proposed by Fassi Fehri (1994). The resulting LF structure, presumably, is as in (17):

(17) $[_{DP}$ **ha-oyvim**$_2$ $[_D$ **harisat** $[_{NP}$ t_2 t_N **'et ha-'ir]]]**
the-enemies destruction OM the-city

A serious drawback to the LF raising account, however, is the ungrammaticality of (18a-b) in English:

(18) a. *$[_{DP}$ sunflower$_2$ $[_D$'s $[_{NP}$ picture $t_2]]]$

b. *$[_{DP}$ D the subject$_2$ $[_D$'s $[_{NP}$ learning $t_2]]]$

For reasons that remain rather poorly understood, a *depicted* in a 'picture' NP, or a non-affected object cannot find themselves in [Spec,DP]. As a result, no Definiteness Spreading of any sort is ever attested in these cases, and (19)-(20) are fully grammatical. Note, crucially, that in the absence of Definiteness Spreading in (19)-(20), an LF movement raising *sunflowers* or *the subject* (in English) to [Spec, DP] is unlikely (note

that as *learning* is a process nominal, an indefinite article is barred independently, as are all count determiners. *Some* is substituted):

(19) a. [$_{DP}$ the [$_{NP}$ picture of the sunflowers]]
b. [$_{DP}$ a [picture of a sunflower]]
c. [$_{DP}$ the [picture of a sunflower]]
d. [$_{DP}$ a [picture of the sunflower]]

(20) a. [$_{DP}$ the [$_{NP}$ learning of the subject]]
b. [$_{DP}$ some [learning of a (difficult) subject]]
c. [$_{DP}$ the [learning of a subject]]
d. [$_{DP}$ some [learning of that subject]]

In contrast with the situation in (19)-(20). Definiteness Spreading in Hebrew does apply in the analogous situations:

(21) a. tmunat ha-xamaniyot
'the picture of the sunflowers'

b. tmunat xamaniyot
'a picture of sunflowers'

(22) a. limud ha-nose
'the learning of the subject'

b. limud nose
'learning of a subject'

Thus in order to maintain the LF movement analysis for Definiteness Spreading not only would we have to assume LF movement in Hebrew where it is not attested overtly, on a par with overt movement in English, but also LF movement where both overt and LF movement are blocked in English. Clearly, then, trying to reduce the Semitic effect to the English paradigm is problematic.

A second issue which remains unaddressed directly by (14a-b) concerns the placement of modifying adjectives. In regular free nominals, adjectival modifiers appear immediately after the N and preceding its complements, as (23) exemplifies:

(23) ha-more ha-ce'ira le-fizika
the-teacher the-young for physics

The placement of adjectives in regular FN is already problematic. Adjoining APs to $\bar{N}$ or higher is necessary in English as well as in Hebrew, to allow recursive modification with its well established scopal properties. In (24a) *second* has scope over *successful [candidate for the job]* as is the case in (25b):[1]

(24) a. the [second [successful [candidate for the job]]]
b. the [successful [second [candidate for the job]]]

(25) a. ha-muamedet ha-Sniya ha-muclaxat la-micra
the-candidate the-second the-successful for the job
'the successful second candidate'

b. ha-muamedet ha-muclaxat ha Sniya la-misra
the-candidate the-successful the-second for the job
'the second successful candidate'

But if APs are adjoined at the $\bar{N}$ level (or higher) and no further movement is attested, such adjunction would give rise to (26a), for left adjunction, and to (26b), for right adjunction, both ungrammatical:

(26) a. $[_{DP}$ **ha** $[_{NP}$ $[_{\bar{N}}$ **ha-xadaSa** $[_{\bar{N}}$ **mora le-fisika]]]]**
the the-new teacher to-physics

b. $[_{DP}$ **ha** $[_{NP}$ $[_{\bar{N}}[_{\bar{N}}$ **mora le-fisika]** **ha-xadaSa]]]**
the teacher to-physics the-new

Interestingly, an $\bar{N}$ (or higher) left-adjunction site for the adjective can be maintained, if we assume that in a structure such as (26b), the head N. *mora* 'teacher' raises to D. However, such N-to-D raising has been proposed for CSN and not for FN, in order to account for contrasts such as (5) on the one hand, and (I 2a) on the other hand.

N-to-D movement in CSN does go some way toward explaining the distribution of APs in CSN. Thus consider (27):

(27) a. $[_{DP}$ $[_{NP}$ kita $[_{\bar{N}}$ xadaS $[_{\bar{N}}$ more]]]]
class-f new-m teacher-m

b. $[_{DP}$ more$_i$ $[_{NP}$ kita $[_{\bar{N}}$ xadaS $[_{\bar{N}} t_i]]]]$
teacher class new

'a new teacher of a class'

But when a slightly more complicated CSN structure is considered, in which both head and complement are modified, the explanatory power of N-to-D movement disappears: the word order of adjectives (cf. 28c) cannot be derived. Rather, the ungrammatical (28b) is derived:

(28) a. $[_{DP1}\ [_{NP1}[_{DP2}\ [_{NP2}\ [_{N2}$ mitkademet kita $[_{N1}$ xadaS $[_{N1}$ more]]]]
advanced-f class-f new-m teacher-m

b. *$[_{DP1}$ more$_1$ $[_{NP1}[_{DP2}[_{NP2}[_{N2}$ mitkademet kita $[_{N1}$ xadaS $[_{N1}$ t_1]]]]
teacher-m advanced-f class-f new-m

c. more kita mitkademet xadaS
teacher class advanced new

'a new teacher of an advanced class'

4. ADDITIONAL PROBLEMS, SOME MODIFICATIONS

A more serious problem specifically for the structures in (14a-b) results from the fact that FN utilizing the genitive preposition *Sel* 'of' exhibit an identical NSO word order as already exhibited by (10b-c).

Clearly, the word order in (10b-c), identical to that found in CSN, is independent of the other -properties associated with CSN: the positioning of modifiers and Definiteness Spreading. FN do not exhibit Definiteness Spreading, and adjectives are placed directly after the head they modify, preceding PP complements as well as *Sel*-phrases, as (29a-d) exemplify:

(29) a. ha-harisa-f ha-'axzarit-f Sel ha-'oyev-m ha-xamuS-m 'et ha-'ir
the-destruction the-cruel of the-enemy the-armed OM the-city

b. ha-sefer ha-xadaS 'al ha-Stixim ha-parsim
the-book the-new about the rugs the Persian

c. ha-sefer 'al ha-Stixim Sel ha-sifriya
the-book about the-rugs of the-library

Clearly, then, a single N-to-D movement deriving properties (13A,B,C) is untenable. Ritter (1991), approaching this problem directly, thus suggests that two types of head movement and two distinct functional projections are associated with nominals in Hebrew. The first head movement, attested in all nominals, is N-to-Num (=number), head of NumP, resulting in NSO word order for CSN and FN alike. A second movement, unique to CSN, is Num-to-D, accompanied by the movement of the subject of NP from [Spec,NP] to [Spec,NumP]. This latter movement is intended to derive Definiteness Spreading and the placement of adjectives. A somewhat similar solution is proposed by Siloni (1994). Siloni proposes that all N heads, in both CSN and FN, move to D to check their ±definite base-generated features, adopting a proposal in Borer (1988), that the definite article in Hebrew is a base-generated feature on the head N. Although heads of CSN are not overtly marked as ±definite, Siloni assumes that they are nevertheless inherently marked as ±definite, and that this marking is realized as the

special bound morphology on the heads of CSN. As a result, such nouns must move to D to check their features. As heads of CSN are also inherently marked with agreement features, these features are checked in an intermediate functional head, AgrGen, whose Specifier, in turn, assigns genitive Case to the subject of the NP moved there. The derivations proposed by Ritter (1991) and Siloni (1994) are given in (30)-(31) respectively:

(30) FN: $[_{DP1}$ **ha-**$[_{NumP1}$**harisa** $[_{NP1}$ $[_{NP1}[_{DP2}$(Sel) **ha-**$[_{NumP2}$ **'oyev** $[_{NP2}$
the destruction-f ⇑ of the enemy-m ⇑
AP AP
ha-'axzarit **ha-xamuS**
the-cruel-f the-armed-m

$[_{NP2}t_{n2}]]]]_{tn1}$ **'et ha- 'ir]]]]**
OM the-city

CSN: $[_{DP}$ **harisat** $[_{NumP}[_{DP}$ **ha-**$]_{NumP}$ **`oyev** $[_{NP}$ $[_{NP}t_{n2}]]]]]$$[_{NP}$ $[_{NP}t_2t_n$ **`et ha-`ir]]]**
destruction-f the enemy ⇑ ⇑ OM the-city
AP AP
ha-xamuS **ha-'axzarit**
the-armed-m the-cruel-f
(Ritter,1991)

(31) FN: $[_{DP}$**ha-harisa** $[_{NP}$ $[_{NP}[_{DP}$ (Sel) **ha-'oyev** $[_{NP}$ $[_{NP}t_{n2}]]]$ t_n **'et ha-'ir]]**
the destruction-f ⇑ of the enemy-m ⇑ OM the-city
AP AP
ha-'axzarit **ha-xamuS**
the-cruel-f the-armed-m

CSN: $[_{DP}$**harisat** $[_{AGRgen}[_{DP}$ **ha-'oyev** $[_{NP}$ $[_{NP}t_{n2}]]]$ t_n $[_{NP}$ $[_{NP}t_2$ t_n **'et ha-'ir]]]**
destruction the-enemy ⇑ ⇑ OM the-city
AP AP
ha-xamuS **ha-'axzarit**
the-armed-m the-cruel-f
(Siloni, 1994)

As an advantage of both analyses, note that they account for the nested distribution of AP modifiers. Suppose, as has been recently proposed by Valois (1991), AP modifiers are adjoined to NP. As the structures in (30)-(31) both involve movement of N outside the NP projection, we expect AP to always follow N. As both analyses also involve movement of the subject of N outside the NP in CSN, but not in FN, the placement of the AP after this subject in CSN follows as well. The placement of APs in these analyses is marked with arrows in (30)-(31).

5. WORD ORDER IN NOMINALS: PROCESS NOMINALS VS. NON-PROCESS NOMINALS

Hazout (1988, 1990, 1995) as well as Borer (1991, forthcoming) argue that word order in **process nominals** (Grimshaw's 1990 **Complex Event Nominals**), as exemplified specifically in (2b,c), but not in underived nominals or non-process derived nominals, is derived not from the raising of N-to-D, but rather, from the existence of an embedded VP, and the raising of V to an N head. Abstracting away from some differences between Hazout's analysis and Borer's analysis at this point, the D-structure for process nominals in FN configurations such as (32a-b) would be as in (33a). The derived structure is given in (33b):

(32) a. ha-harisa Sel ha-'oyev 'et ha-'ir
the-destruction of the-enemy OM the city

b. ha-tipul Sel ha-Siltonot ba-ba'aya
the-treatment of the authorities in the problem

(33) a. $[_{DP}\,[_{NP}$ N $[_{VP}$ Subj V OM Obj/PP]]]

b. $[_{DP}\,[_{NP}$ V+N $[_{VP}$ Subj t_V OM Obj/PP]]]
harisa (Sel) ha-oye et ha-'ir
destruction of the enemy OM the-city

Although the analyses proposed for CSN in Hazout (1990) and Borer (1991) differ, both share the assumption that the structure in (33) is the structure which serves as an input to the CSN in (34):

(34) a. harisat ha-oyev 'et ha-'ir
destruction the-enemy OM the city

b. tipul ha-Siltonot ba-ba'aya
treatment the-authorities in-the-problem

The most salient difference between the Embedded VP Hypothesis and the accounts presented above is that for proponents of the former, the derivation of word order in process nominals is entirely independent from the existence of functional projections or from any properties associated with CSN. While the Embedded VP Hypothesis borrows from Ritter's original intuition the assumption that the word order is derived by the extraction of a head from the clause it heads, the movement here is of an embedded V head, incorporating onto a dominating N head, thereby resulting in NSO word order. The formation of CSN nominals, in turn, is an independent operation on the structure in (33), bringing together the output of V+N with the first constituent of the embedded VP, in the case of (33), the embedded subject. Borer (1991) further makes

a principled distinction between process nominals, in which arguments are present which are part of the argument structure of the embedded V, and non-process nominals, whether derived or underived, in which a VP is not present, and hence, there is no argument structure as such (although, of course, *possessor* or PP modifiers are possible).

Putting aside here some criticism of the Embedded VP Hypothesis[2] an important question can now be raised. If the NSO word order in process nominals derives from V-to-N raising, what accounts for the N-initial position in NPs which are not process nominals? Specifically, what accounts for the word order in (2a), or in NPs such as those in (35):

(35) a. ha-sefer Sel ha-sifriya 'al ha-Stixim
the-book of the-library about the-rugs

b. ha-tmuna Sel van gogh Sel ha-xamaniyot
the-picture of Van Gogh of the sunflowers

It turns out, however, that there are some crucial differences between the non-process nominals NPs in (35), and process nominals. While in cases such as (35) the NP must always be head initial, Shlonsky (1988) observes that the order of the post-head elements is free. Thus alongside (35a-b) we have (36a-c), with identical interpretation:

(36) a. ha-sefer' al ha-Stixim Sel ha-sifriya
the-book about the-rugs of the library

b. ha-tmuna Sel ha-xamaniyot Sel van gogh
the-picture of the sunflowers of Van Gogh

c. ha-tmuna Sel ha-xamaniyot Sel ha-muzeon
the picture of the sunflowers of the museum[3]

In contrast, no such freedom of word order is available for process nominals. These come in two varieties, each with a strict word order. An active variety, as in (2b), repeated in (37), with an alternation in word order leading to ungrammaticality, as (38a-b) illustrate, and a passive variety, in which the N head is followed by the object and the subject is expressed as a *by*-phrase, as in (39) (a derivation excluded with a PP complement). Here, too, word order is rigid, as the ungrammaticality of (40a-b) clearly illustrates:

(37) a. ha-harisa Sel ha-oyev 'et ha-'ir
the-destruction of the enemy OM the-city

b. ha-tipul Sel ha-Siltonot ba-ba'aya
the-treatment of the authorities in the problem

(38) a. *ha-harisa 'et ha-'ir Sel ha-oyev
(*ha-harisa Sel ha-'ir 'et ha-oyev)
(*ha-harisa Sel ha-'ir Sel ha-oyev)
b. *ha-tipul ba-ba'aya Sel ha-Siltonot
(*ha-tipul Sel ha-ba'aya Sel ha-Siltonot)

(39) ha-harisa Sel ha-'ir 'al yedey ha-'oyev
the-destruction of the city by the enemy

(40) *ha-harisa 'al yedey ha-'oyev Sel ha-'ir.
*ha-harisa Sel ha-oyev 'al yedey ha-'ir

The rigidity of word order exhibited in (37)-(38) follows directly from the embedded VP analysis. Suppose the order of the embedded subject and object is determined by the constituent structure within the VP. In (37), the subject is in [Spec,VP], while the direct object or the PP complement are sisters of V. The ungrammaticality of (38) follows directly from the nonavailability of a position into which an NP or a PP complement can be fronted. As for (39), I argue in Borer (1991, forthcoming) that its derivation involves passive inside the embedded VP, with the NP object moved to [Spec,VP], and the embedded subject of the verb expressed as a *by*-phrase.[4] The proposed structure of passive process nominals is as in (41):

(41) a. $[_{DP}\ [_{NP}\ \mathbf{N}\quad [_{VP}\ \mathbf{V\ NP}]\quad \textit{by}\ \mathbf{NP}]]$
b. $[_{DP}\ [_{NP}\ \mathbf{V+N}\ [_{VP}\ \mathbf{NP}_1\ t_V t_1]\quad \textit{by}\ \mathbf{NP}]]$

harisa (Sel) ha-'ir 'al yedey ha-'oyev
destruction of the city by the-enemy

If this analysis is correct, we do not expect freedom of word order in (39) any more than we expect it in the comparable sentential passive case. The NP object having moved to [Spec, VP], it must precede the embedded subject of the VP expressed as a *by*-phrase, which is, presumably, right adjoined to the VP.

Crucially, and independently of the Embedded VP Hypothesis, any account for the ungrammaticality of (38), (40) must be based on the assumption that the post-posing of the DP constituent immediately following the N head in process nominals is not possible. This is regardless of whether such a constituent is in [Spec,VP], [Spec,NP], as Ritter (1987, 1988), [Spec,NumP], as in Ritter (1991), or [Spec,Agr_{gen}], as in Siloni (1994). Such post-posing, if allowed, would rule in (38), (40), contrary to fact: it would allow either the subject constituent in (38) or the object constituent in (40) to be post-posed, predicting, erroneously, the grammaticality of NOS orders in active process nominals, and NSO orders in passive process nominals.

But consider now the freedom of word order exhibited in (35)-(36), non-process nominals, when compared with the absence of such freedom in process nominals. For

proponents of the Embedded VP Hypothesis a principled structural distinction between process nominals and non-derived nominals follows directly from the presence of a VP in the former vs. its absence in the latter. For opponents of the Embedded VP Hypothesis, on the other hand, in process nominals and non-derived nominals alike, all arguments are associated with an N head: the subject, whether *agent* or *possessor*, is in [Spec,NP] and the complement, whether a *patient*, a *depicted*, or a PP modifier, is a sister of N. Within such analyses, it is rather hard to make a principled distinction between the freedom of word order in non-derived nominals and its rigidity in process nominals. Why would it be possible to place a PP complement such as *'al ha-Stixim* 'about the rugs' preceding the subject, *ha-sifriya* 'the library', in [Spec,NP] as in (36a), but such freedom of word order be blocked in the process nominals (38b), where placing a PP complement *ba-ba'aya* 'in the problem' preceding the subject *ha-Siltonot* 'the authorities' leads to ungrammaticality? Under the assumption that process nominals and non-process nominals have an identical structure the contrast between (36a) and (38b) becomes a complete mystery.

Making matters worse, consider the following facts, observed (but not explained) in Siloni (1994) (see also Shlonsky 1988). Siloni notes that while non-process nominals display the word order freedom illustrated in (35)-(36), this is only the case in FN. In CSN, on the other hand, very strict word order restrictions emerge. Thus, of the combinations in (35)-(36) (and recall that PP complements cannot participate in CSN), only the ones in (42) are licit. The CSNs in (43) are ungrammatical:

(42) a. tmunat ha-xamaniyot Sel van gogh
picture the sunflowers of Van Gogh

b. tmunat ha-xamaniyot Sel ha-muzeon
picture the sunflowers of the museum

(43) a. *tmunat van gogh Sel ha-xamaniyot
the-picture of Van Gogh of the sunflowers

b. *sifrey ha-silriya 'al ha-Stixim
books the-library about the-rugs

c. *tmunat ha-muzeon Sel ha-xamaniyot
picture the-museum of the sunflowers

The generalization is that in the presence of complements in non-process nominals, CSN formation with *possessors* (or understood *agents*) is blocked.[5] If the complement is itself a DP, N+complement CSN formation is possible. If it is a PP, CSN formation is altogether blocked. Now this contrasts sharply with the situation in process nominals. Here, in the presence of both subject and object, and in the active configuration, the only allowed CSN is head+Subj., and never head+Obj. The presence of a subject alone is altogether ungrammatical in both CSN and FN.[6] CSNs formed with the understood complement of process nominals are only possible if the external argument is expressed

as a *by* phrase (or is missing altogether), and in line with a passive derivation, the "internal argument" becomes a derived subject:

(44) a. *harisat ha-'ir Sel ha-oyev
destruction the-city of the enemy

b. *harisat ha-'oyev Sel ha-'ir
enemy of the city

(45) a. harisat ha-'oyev 'et ha-ir
destruction the enemy OM the-city

b. harisat ha-'ir ('al yedey ha-'oyev)
destruction the city (by the enemy)

Again, within an approach which assigns to both process nominals and non-process nominals the structure, roughly, in (46), it is difficult to see how these facts can be accounted for. A rather ad hoc restriction would have to block the movement of the subject to [Spec,FP] in (46b), but allow the movement of the object to that position, while the reverse must hold for (46a):

(46) a. $[_{FP1}$ **N** ...$[_{FP2}$... $[_{NP}$ **Subj** t_N **Obj]]]**
harisa 'oyev 'ir
destruction enemy city

b. $[_{FP1}$ **N**... $[_{FP2}$... $[_{NP}$ **Subj** t_N **Obj]]]**
tmuna van gogh xamaniyot
picture van gogh sunflowers

A solution appears available, however, for proponents and opponents of the Embedded VP Hypothesis alike. Suppose *possessors* and *agents* of non-process nominals (but not subjects of process nominals) are not, actually, in [Spec,NP], but rather, they are right-adjoined to NP. Suppose further that movement from such an adjunction site to [Spec,FP_2] is blocked. It thus follows that only an object may move to that position, resulting in the pattern in (47):

(47) a. $[_{FP1}$ **N**...$[_{FP2}$... $[_{NP}$ **Subj** t_N **Obj]** **process nominals**

b. $[_{FP1}$ **N**...$[_{FP2}$... $[[_{NP}$ t_N **Obj] Subj]** **non-process nominals**

An auxiliary assumption, to account for the (un)grammaticality in (35)-(41) would be that objects of non-process nominals can be post-posed, hence accounting for the NSO order.

Some independent evidence for a hierarchical structure inside non-process nominals, and for the presence of object post-posing in these structures comes from the following paradigm, adapted from Shlonsky (1988):

(48) a. ha-tmuna Sel kol 'em$_2$ Sel bn-a$_2$
the-picture of every mother of her son

b. ha-tmuna Sel kol ben$_2$ Sel 'im-o$_2$
the-picture of every son of his mother

c. ha-tmuna Sel im-o$_2$ Sel kol ben$_2$
the-picture of his-mother of every son

d. ha-tmuna Sel kol cayar$_2$ Sel kalb-o$_2$
the picture of every painter of his dog

e. *ha-tmuna Sel kol kelev$_2$ Sel ha-cayar Sel-o$_2$
the-picture of every dog of the-painter his

f. ha-tmuna Sel kalb-o$_2$ Sel kol cayar$_2$
the-picture of his dog of every painter

g. *ha-tmuna Sel ha-cayar$_2$ Sel-o$_2$ Sel kol kelev$_2$
the picture of the painter his of every dog
Following Shlonsky (1988)

Shlonsky observes that although the order of the *possessor* and the complement is interchangeable, the interpretation is restricted, allowing only the *possessor* to serve as an antecedent for the complement, but not the other way around. This paradigm thus suggests that the *possessor* asymmetrically c-commands the complement in both NSO and NOS word orders. Now let us combine this conclusion with the conclusion just reached, that the *possessor* is not in [Spec,NP], or the formation of N+Subj. CSN would be erroneously predicted. Under the assumption that the complement is generated as a sister of N. it follows that the *possessor* must be adjoined to the right, and an NSO order derived by rightward adjunction of the object, which does not seem to impact scope.

Let us then conclude that there is strong evidence for generating process nominals with the subject preceding and c-commanding the object, and equally strong evidence for generating nonprocess nominals with the complement preceding the subject linearly (although it is c-commanded by it). This conclusion, however, has a clear consequence: the neutral, non-derived word order in non-process NPs in Semitic involves an N-initial projection. If, however, this is the case, then it follows that movement of N to a functional projection in order to derive the N-initial nature of nominals in Semitic languages is redundant. Regardless of whether such movement is or is not otherwise motivated, it has no effect on word order. The word order in non-process nominals already is N-initial, making the word order motivation for that movement questionable.[7]

Returning to the word order motivation for N-to-D movement, note that such movement would still be necessary to derive NSO configurations for process nominals if the Embedded VP Hypothesis is rejected. Given, however, the non-uniform nature of NP structure to begin with, and the structural differences between process nominals and non-process nominals, one is led to question the assumption that they have anything in common. While the Embedded VP Hypothesis appears, at first sight, to be complex, postulating two completely distinct structures associated with what are, after all, NPs which have much in common, given that these distinctions do, in fact, exist, the postulation of distinct structures, one involving a VP and the other not, seems appealing.

Finally, consider again the behavior of DP complements in process nominals vs. their behavior in non-process nominals. Recall that NSO orders in non-process nominals are assumed to be derived by postposing the complement and adjoining it to the right of the already adjoined *possessor/agent*, a postposing which does not affect c-command. This postposing, however, is blocked in process nominals, correctly excluding (42b). In fact, in process nominals an object may never follow an adjunct:

(49) a. ha-'axila Sel Dan 'et ha-tapu'ax be mehirut
davka'axSav

the-eating of Dan OM the-apple quickly
exactly now

b. ?*ha-'axila Sel Dan be-mehirut 'et ha-tapu'ax
davka'axSav

the-eating of Dan quickly OM the-apple
exactly now

The marginality of (49b) contrasts with the grammaticality of similar configurations in sentential VPs:

(50) a. Dan 'oxel 'et ha-taputax be-mehirut
davka 'axSav

Dan eats OM the-apple quickly
exactly now

b. Dan 'oxel be-mehiru 'et ha-tapu'ax
davka 'axSav

Dan eats quickly OM the-apple
exactly now

But the grammaticality of (50b), when contrasted with (49b), results from the subject of the VP raising to the Specifier of some higher functional projection, while the verb raises to a functional head, as is conventionally assumed (see Emonds (1978), Pollock (1989)). Consider now the derivation of the process nominals in (49b). Although it is assumed within the Embedded VP Hypothesis that the verb has raised to N, the subject of the embedded VP remains in [Spec,VP]. Under the assumption that adverbs are adjoined to maximal projections, the occurrence of an adverb between the VP-subject and the VP-complement would either require $\overline{V}$ adjunction, presumably non-existent, or object post-posing. As object post-posing would have rescued the derivation, rendering it grammatical, the ungrammaticality of (49b) strongly suggests that object post-posing from within the VP is blocked.

Interestingly, (49b) improves greatly if rather than EN, CSN appears, as in (51):

(51) 'axilat Dan be-mehirut 'et ha-tapu'ax
davka 'axSav

eating Dan quickly OM the-apple
exactly now

I will return to the reason for this contrast in section 7.2 below, when I elaborate further on the properties of CSN.

6. CSN AND INCORPORATION

6.1 Hazout, 1990

It follows from the discussion in the previous sections that N-to-D movement, or for that matter, N-to-F movement, if indeed present, cannot be seen as deriving NSO word orders. Such word orders are present, without object postposing, only in process nominals, where they are plausibly derived by V-to-N incorporation. In non-process nominals, the D-structure word order is NOS, and N-to-F raising would not have any impact on it. NSO word orders for such nominals are derived by postposing the complement, which is blocked in VPs.

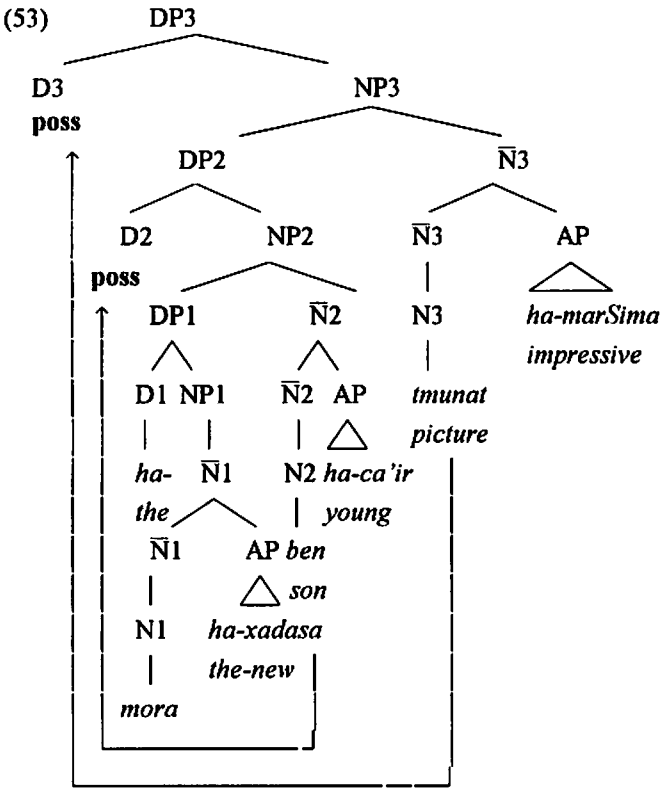
Once word-order effects are set aside, note that the distinct structures given to process nominals and non-process nominals do not provide an account for the specific properties of CSN when compared with FN. These properties, word order aside, are repeated in (52):

(52i) **Properties of CSN:**

A. Definiteness Spreading
B. No direct modification for the head
C. Nested order of adjectives
D. Word properties

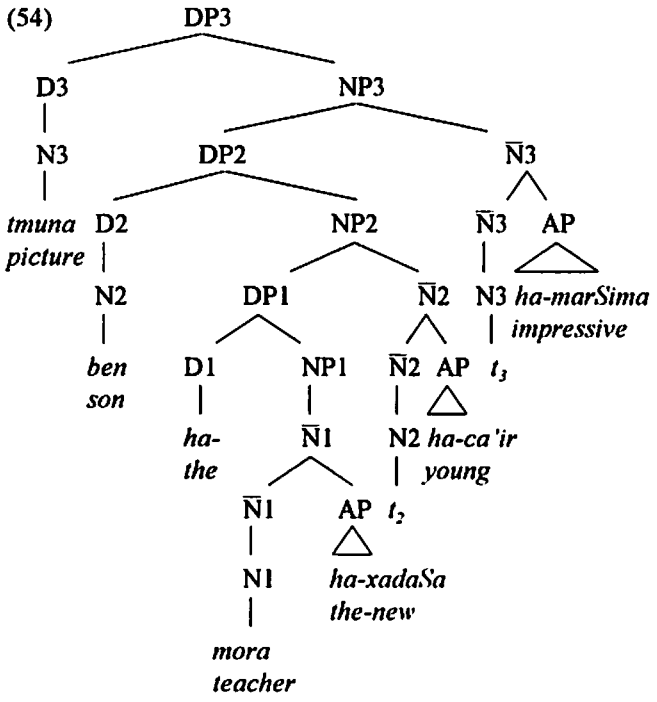
Thus Hazout (1990), although assuming the Embedded VP Hypothesis, potentially resulting in NSO word order in process nominals, nevertheless assumes that N moves to D in CSN. Specifically, Hazout (1990) assumes that the D may dominate either the definite article *ha-* in Hebrew (or *l-* in Arabic) or alternatively, dominate a marker which is inherently marked as ±definite, and which is an assignor of genitive Case -- under government -- to the Specifier of its NP complement. Crucial to his analysis is the assumption that DP complements to CSN heads are interpreted as *possessors*, and that as such, they must occupy the [Spec,NP] position, dedicated to *possessors*. The head of the NP which is being 'possessed' is generated to the right, in a typical $\overline{X}$-theoretic head position, and comes to precede the *possessor* in [Spec,NP] as a result of N-to-D raising. Following such raising, the trace of N becomes associated both with the definiteness value of poss in D and with its genitive assignment features, resulting in the DP in [Spec,NP] being genitive. Hazout's D-structure of (non-process) nominals is given in (53) (note that Hazout postulates APs adjoined to $\overline{N}$ on the right):

(53)



Following the raising of N to D, the resulting structure is as in (54):

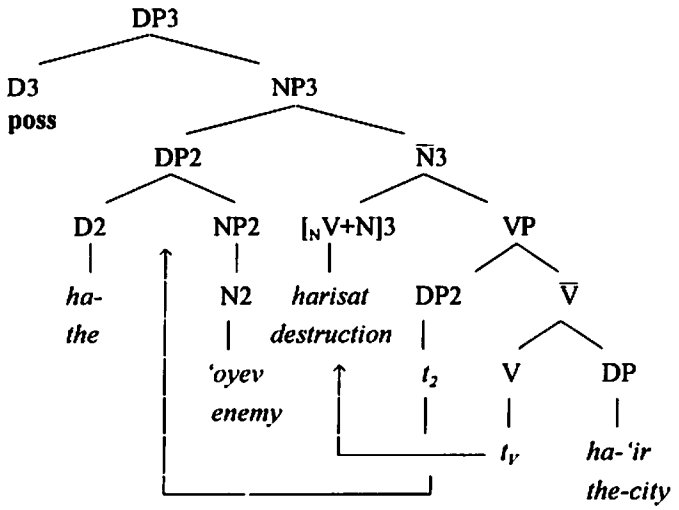
(54)



N_3 N_2 N_1 AP_1 AP_2 AP_3

In process nominals, embedding a VP, the DP in [Spec,VP] is raised to [Spec,NP], creating a structure akin to (53), which serves as an input to CSN formation on a par with (54):

(55)



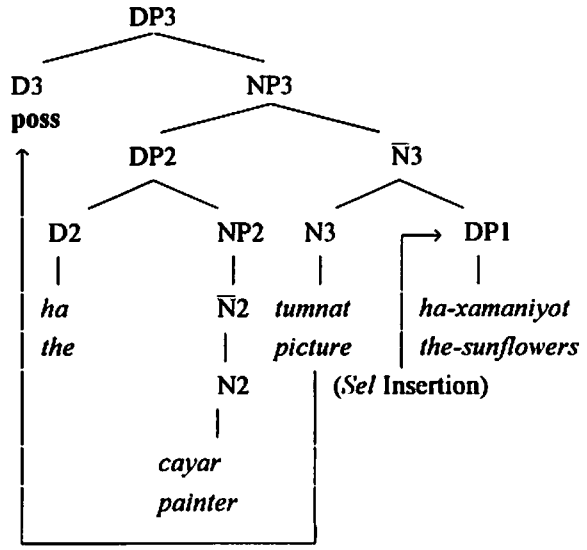
There are a number of clear advantages to Hazout's proposal. First, note that explanation for the complementarity of determiners and CSN constructions also accounts for Definiteness Spreading. A second advantage concerns the placement of adjectives in CSN. The derived word order in (54) is appropriately nested: N3, N2, N1, AP1, AP2, AP3.[8]

Finally, the placement of the understood *possessor* in [Spec,NP] in structures such as (54) captures the subject-like properties of that DP.

Unfortunately, some of the advantages of Hazout's system are mirrored by disadvantages. Difficulties associated with Hazout's idea that Definiteness Spreading in Hebrew is akin to the English definiteness agreement between *possessors* and *possessed* were already discussed (see examples (15)-(22) and related discussion).

A second problem concerns the observations made in section 4. Recall that in the presence of both *possessor/agent* and a complement non-process nominals, CSN formation is only possible with the complement The structures in (53)-(54) make exactly the opposite prediction, as for Hazout, *possessor/agents* are crucially in [Spec, NP], giving them 'priority' in CSN formation (recall that this is precisely the case in process nominals, but not in non-process nominals). Thus the structure of a non-process nominal with both *possessor/agent* and *depicted* complement in Hazout's system would be (presumably) as in (56):

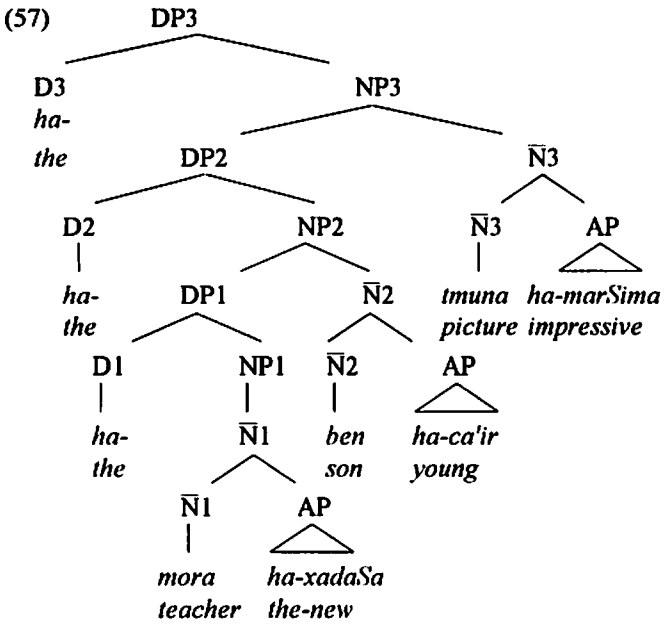
(56)



The structure in (56) predicts the grammaticality of *tmunat ha-cayar Sel ha-xamaniyot*, 'picture the painter of the sunflowers' and the ungrammaticality of *tmunat ha-xamaniyot Sel hacayar*, 'picture the sunflowers of the painter', contrary to fact.

Finally, while the structures in (53)-(54) are successful in deriving word order of nouns in CSN, they derive the wrong word order, of both heads and AP modifiers, for FN. (57) is a slight modification of (53) accommodating the properties of FN:

(57)



det det det N1 AP1 N2 AP2 N3 AP3

Without any further modification, the structure in (57) would give rise to the ungrammatical sequence in (58):

(58) *ha ha ha more ha-xadaSa ben ha-ca'ir tmuna ha-marSima
the the the teacher the-new son the-young picture the-impressive

There are (at least) three things wrong with (58). First, the stranded definite articles *ha-*, which is a bound morpheme, and its triple concatenation. Second, the order of Ns is exactly opposite to the grammatically-required order (recall that in this structure, it is *picture* which is head, and the *teacher's son* is its possessor), and finally, the order of the APs is exactly opposite of that grammatically required.

Recall that in FN, APs follow immediately the head which they modify. The correct version of (57) is as in (59):

(59) ha-tmuna ha-marSima (Sel) ha-ben ha-ca'ir (Sel) ha-more ha-xadaSa
the-picture the-impressive (of) the-son the-young (of) the-teacher the-new

Consider some ways of modifying the structure in (57) so as to avoid the result in (58). First, the bound morpheme *ha-* and the possibilities of attaching it to its host. It could be assumed that all Ns raise to Ds and adjoin to *ha-*, just as in CSN. There are, however, two problems for Hazout with such a move. First, the resulting word order, as in (60a), would still have the wrong order of APs. Second, if N-to-D occurs in the presence of

ha-, it is not clear why CSNs display the complementarity between bare N heads and definite articles which is one of their salient properties. Another possibility would be to assume that a post-syntactic morpho-phonological rule attaches *ha-* to its host. Apart from generating an incorrect word order as well (cf. 60b), this move would also cast serious doubt on any account which seeks to explain the complementarity of CSN and definite articles by syntactic head movement.

(60) a. *ha-tmuna (Sel) ha-ben (Sel) ha-more ha-xadaSa ha-ca'ir ha-marSima
the-picture (of) the-son (of) the-teacher the-new the-young the-impressive

b. *ha-more ha-xadaSa (Sel) ha-ben ha-ca'ir (Sel) ha-tmuna ha-marSima
the-teacher the-new (of) the-son the-young (of) the-picture the-impressive

Lastly, note that Hazout's analysis, just like Ritter (1991) and Siloni (1994) does not capture the word properties of CSN, a range of facts to which I now turn.

6.2 CSN as a Word

While the phonological word properties associated with CSN are beyond dispute (see, e.g., Prince (1973)), one could argue that these are the result of post-syntactic processes, a liaison of some sort, which is not syntactically relevant. If this, indeed, is the case, syntactic accounts of CSN which do not consider that aspect are justified in doing so. Consider, however, the examples in (61)-(62), discussed in Borer (1984), as well as the contrast in (63):

(61) a. roS Sel SloSa anaSim nir'a mi-ba'ad la-xalon
head of three people was-seen through the window

b. *roS SloSa anaSim nir'a mi-ba'ad la-xalon
head-three people was-seen through the window

(62) a. tmuna Sel SloSa anaSim hayta munaxat 'al ha-Sulxan
picture (1/3) of three people was lying on the table

b. tmunat SloSa anaSim hayta munaxat 'al ha-Sulxan
picture (1/*3) three people was lying on the table

(63) a. lo ra'iti tmuna Sel 'iS
not-saw-I picture of anyone

b. *lo ra'iti tmunat'iS
not saw-I picture anyone

Note that, e.g., (61b) cannot be ruled out as morpho-phonologically infelicitous, as *tmunat SloSa 'anaSim*, 'picture three people', as in (62b), is well formed, showing that

CSN with an NP containing an overt cardinal determiner is well formed. Rather, (61b) is anomalous in being interpreted as one head associated with three men, while (61a) lends itself to an interpretation of one head per person more easily. Likewise, in (62b), the CSN derivation rules out multiple pictures, an interpretation licensed in the FN (62a). The ungrammaticality of (61b) and (63b), and the interpretation of (62b), are naturally explained if it is assumed that they stem from the word status of CSN. Following Word Formation, the cardinal in (61)-(62) may no longer be QRed out of the word to obtain scope over *roS*, 'head' or *tmuna*, 'picture', an operation possible in FN, as the grammaticality of (61a) and the multiple picture interpretation of (62b) show. As a result one head is associated with three people in (61b), which is anomalous, but as the association of three people with a single picture is not anomalous, the effect of CSN in (62) is that of ruling out one of two possible interpretations: the one that involves wide scope for the cardinal.

A similar account can be given for the ungrammaticality of (63b). Suppose negative polarity items such as *'iS* move in LF to adjoin, or substitute, their scope marker, *lo* in (63). The ungrammaticality of (63b), in which such movement is blocked by Word Formation in CSN is thus explained.

These contrasts strongly indicate that CSN becomes a word at a stage which affects interpretation, and hence prior to PF. (and see Borer (1988) for detailed argumentation that CSN is not lexical). In line with Baker (1988) and much subsequent work, it seems plausible that CSN is the result of incorporation: the N-head of the complement is incorporated onto the head of the CSN as a whole, and that in contrast with structures proposed by Ritter (1987,1988,1991), Siloni (in press, 1994), or Hazout (1990), in which the head of CSN and its complement do not form a morphological unit.

Returning to the list of properties in (52), note that we have now suggested not only an account for property (52D), but also for property (52B). Although the formation of a word in the CSN through incorporation does not account for the positioning of adjectives as such, it does exclude their positioning directly following the head, as is the case in FN: under the assumption that CSN formation involves head to head movement and incorporation, the placement of such modifiers directly following the head is a syntactic impossibility.

(52ii) **Properties of CSN**:

A. Definiteness Spreading
✓ B. No direct modification
C. Nested order of adjectives
✓ D. Word properties

6.3 On Incorporation and Extended Projections

Consider now the properties of incorporation as they are relevant to the structure of CSN. Very much in line with Grimshaw (1991), suppose a lexical-functional complex is an Extended Projection (ExP). In fact, using Grimshaw's intuition, let us assume that in the pair F-L, where F is a functional head and L is a lexical head, and where F-L is an Extended Projection, F and L share important categorial features. Specifically, I will also assume that while an Extended Projection may contain more than one functional head, it must contain exactly one lexical head, resulting in the licit configuration for an Extended Projection in (64a), but the illicit ones in (64b-d):

(64) a. ✓ $F_i \approx L_i$
b. * $F^*_i \approx L^*_i$
c. * $F_i \approx L^*_i$
d. * F^*

(where the post-symbol * indicates reiteration, ≈ indicates ExP co-membership and the common subscript notates sharing of the relevant categorial features).

Consider now a slightly more complicated situation, as depicted in (65):

(65) a. $F^m \approx (F^*) \approx L$
b. $F^{m\text{-}n} \approx (F^*) \approx L$
c. L

(65a-c) gives three schematic types of ExP. The first, (65a), is a Complete one: the (single) lexical member L is dominated by the entire set of F projections specified for its categorial type. For instance, for $L=V^m$, one may assume F^m to be C, and F^* to contain T^m, Agr^o, etc.[9] (65b) is a non-maximal ExP. While some functional projections are present, the maximal one is not. For instance, again for $L=V^m$, this would be an ExP not containing C. Finally, (65c) is a bare lexical head, without any functional projections in its ExP.

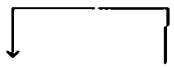
Suppose now that the availability of incorporation is dependent on the ExP type from which it occurs. Suppose, specifically, that incorporation is a form of licensing non-maximal ExP.[10] If this is indeed the case, we predict that incorporation from within (65a) should be blocked altogether regardless of configuration (that is, the incorporation of the head of X^m is blocked as well), but incorporation should be possible from (65b) and (65c). More specifically, suppose that incorporation from (65b), where the ExP does have functional members, but it is non-maximal, is only possible onto F. Finally, consider incorporation from (65c), where no functional projections are present altogether. In principle, it should be possible for L to incorporate into both F and L. However, incorporation into F would only be compatible with the HMC if F dominates no lexical projections. As this situation is ruled out (of 64d), a lexical head may only incorporate into a lexical head:

(66) a. *L ← F^{m} ≈ (F*) ≈ L
*F ←

b. *L ← F^{m-n} ≈ (F*) ≈ L
✓F ←

c. ✓L ← L
*F ←

Consider now the applicability of the incorporation schemata in (66) to the structure of nominals, assuming CSN involves incorporation from a structure essentially as in (67):



(67) [. . . N . . . [x . . . N . . .]]
CSN-head **CSN-complement**

One direct conclusion can now be drawn: to the extent that the complement in the CSN allows the incorporation of its head, it cannot be F^{m}. It may be either F^{m-n} or L.

Let us then turn to the investigation of the question whether it is an L or an F^{m-n}. In considering this question, some contrasts would be helpful. Thus consider the following paradigm:

(68) a. Sarvuley xulca
sleeves shirt
'sleeves of a shirt'

b. Sarvuley xulca meSubecet
sleeves shirt plaid
'sleeves of a plaid shirt'

c. Sarvuley xulca mi-flanel
sleeves shirt from flannel
'sleeves of a flannel shirt'

d. Sarvuley SaloS xulcot
sleeves three shirts
'sleeves of three shirts'

e. Sarvuley SaloS xulcot meSubacot mi-flanel
sleeves three shirts plaid from flannel
'sleeves of three plaid flannel shirts'

(69) a. meSubac xulca
plaid shirt
'plaid shirted'

b. *meSubac xulca kxula
plaid shirt blue

c. *meSubac xulca mi-flanel
plaid shirt from flannel

d. *meSubac SaloS xulcot
plaid three shirts

(70) a. ha-kilometrim ha-'arukim beyn nahariya ve-tel-aviv mukarim li heytev
the-kilometers the-long between Nahariya and Tel-Aviv familiar to me well

b. Dan rac SloSa kilometrim 'arukim
Dan ran three kilometers long

Note that the nominal complement in CSN can be modified by an adjective, can have a cardinal associated with it, and may itself take a complement as (68) exemplifies. As such, it contrasts with Construct State Adjectives, as in (69). Here the head is an adjective, and the entire phrase is an AP. The complement of that A, a nominal itself, is, however, severely restricted. It may not be modified by an adjective (69b), it may not take a complement (69c), and it may not have a cardinal associated with it (69d). Interestingly, the complement in (69a) may take a definite article, when the entire AP exhibits definiteness agreement with a definite NP. However, in such cases the complement is still barred from itself having a complement, being modified, or being associated with a cardinal:

(71) a. ha-yeled meSubac ha-xulca
the boy plaid the shirt
'the plaid shirted boy'

b. *ha-yeled meSubac ha-xulca ha-kxula
the boy plaid the shirt the-blue

c. *ha-yeled meSubac ha-xulca mi-flanel
the boy plaid the shirt from flannel

d. *ha-yeled meSubac SloSet ha-xulcot
the boy plaid three the shirts

The definite article on the complement of the Construct State Adjective in (71) is thus clearly a concord phenomenon, rather than a functional D projection. It strongly

suggests that the definite article *ha-* in Hebrew does not necessarily indicate the presence of a functional category. I return to this point below.

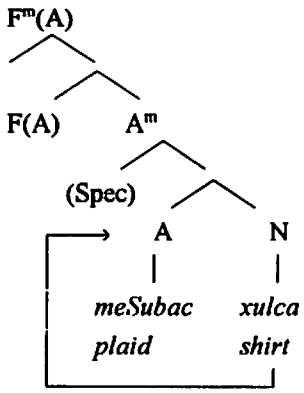
Returning now to the paradigm in (68)-(70), note that an intermediate case, of sorts, is attested in (70). Here, the presence vs. absence of the definite article leads to a difference in interpretation. While in (70a) the long kilometers are understood as referential (the specific kilometers separating Tel-Aviv from Nahariya), this is not the case in (70b), where three long kilometers are a measure phrase, and do not refer to any specific stretch of land.

In recent studies, Szabolsci (1989) as well as Longobardi (1994) have argued that D is the locus of reference in nominals. If this is indeed so, it stands to reason that in the absence of such reference, the measure phrase in (70b) is not, in fact, a DP. Yet, it is accompanied by a cardinal and by an adjective, suggesting that it is not just a bare N. Suppose, then, that we assume that while the nominal in (69a) is a bare N, thereby accounting for its distribution, the nominal in (70b) is a non-maximal functional projection dominating an NP. For concreteness, suppose that the nonmaximal functional projection in question is a NumP, following Ritter (1995). Suppose further that F^m for NPs is DP. As a result, the following picture emerges:

(72) a.		Dm ≈	Num_m ≈	(F*) ≈	N	**referential**
b.			Num^m ≈	(F*) ≈	N	**(measure phrase)**
c.					N	**non-referential**
(73) a.	***L** ←	D^m ≈	Num^m ≈	(F*) ≈	N	**referential**
	***F** ←					
b.	***L** ←		Num^m ≈	(F*) ≈	N	**(measure phrase)**
	✓F ←					
c.	**✓L** ←				N	**non-referential**
	***F** ←					

While (72) gives the range of ExP of nominals and their interpretation, (73) gives their incorporation possibilities. Assuming now that the complement of Construct State Adjectives is a bare N, we predict the following structure:

(74)

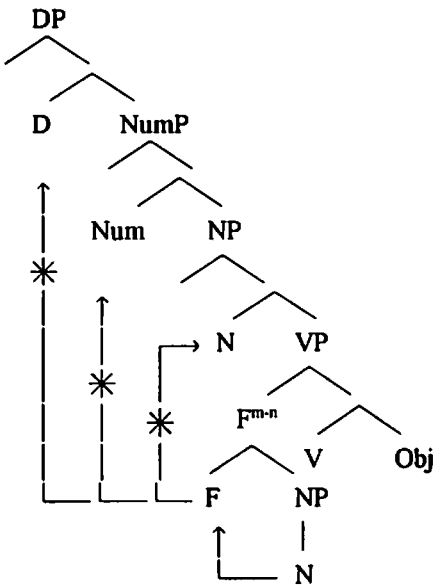


Here N incorporates onto A, remaining non-referential.[11]

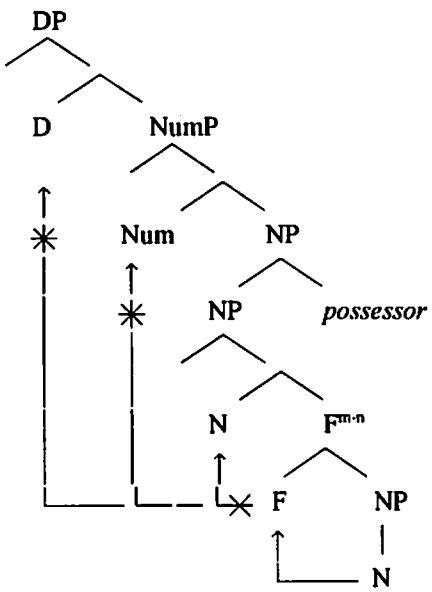
Returning now to CS Nominals, recall that I assumed that the head of the complement incorporates, thereby accounting for the word properties of the CSN. It now follows from this assumption that the complement may not be a DP, as DPs would not allow further incorporation from within them. In turn, the complement of CSN is clearly not a bare N: the paradigm in (68)/(69) clearly shows that it can be modified and complemented in ways which are not available to bare N. We thus reach the conclusion that the complement in CSN is F^{m-n}, and as such, may incorporate, but only onto a functional head, not a lexical one. Having thus far proposed only NumP as an intermediate F for nominals, suppose, then, that the complement of CSN is NumP.

Consider in this view the structure of nominals. (75) is the structure of process nominals, while (76) is the structure of non-process nominals. In both, note, the head of the CSN complement, F, is now barred from incorporating onto the governing N head of the CSN. Nor is incorporation of the head of the complement onto any other head possible in these configurations, due to the HMC. Thus, a paradox seems to emerge: while the head of the complement seems to incorporate, and furthermore, it forms a word with the head N of the CSN, such incorporation appears structurally barred:

(75)



(76)



A second problem seems to face the account. I suggested that in the absence of the maximal functional projection for nominal ExP, DP, nominals are non-referential. Yet, the complement in CSN is clearly referential. It can serve as an antecedent in binding (77a), a pronominal can refer back to it (77b), and it can serve as a bound pronoun (77c):[12]

(77) a. retiyat ha-moral 'et 'acmal
view the-teacher OM herself

b. halaxnu le-beit ha-moral ve-hi$_i$ 'erxa 'otanu
went-we to-house-the-teacher$_i$ and she$_i$ hosted us

c. tmunat kalb-o$_i$ Sel kol cayar$_i$
picture dog-his of every painter

How can we reconcile the claim that complements in CSN are not DP with their referentiality?

In the next section I turn to the resolution of these final questions.

7. THE DEFINITENESS CRITERION

I concluded the last section with two outstanding questions, repeated here in (78):

(78) A. If the head of a non-maximal functional ExP can only incorporate onto a functional head, how can the N+N combination in CSN be a word formed by incorporation?

B. If the complement in CSN is F^{m-n}, why is it referential?

To these questions, a third may be added: I argued above that many of the properties of CSN can be derived from the incorporation of the head of the complement onto the head of the CSN. Further, it is because of the presence of such incorporation, and the conditions on incorporation suggested above, that the questions in (78A-B) even arise: because the head of the complement is assumed to incorporate, the complement must be non-maximal, and yet it is referential. It is because the complement is clearly not a bare lexical projection, that it cannot incorporate onto a lexical projection. In the absence of incorporation, none of these questions arise. Yet, what is the reason for such incorporation? This additional question is formulated in (78C):

(78) C. What drives incorporation in CSN?

If it is, indeed, true that the properties of CSN can follow in their entirety from the incorporation of the head of the complement, together with a restrictive theory of incorporation, the resolution of the question in (78C) becomes the key to the existence of CSN nominals altogether. Presumably, once we understand why CSN must involve incorporation, we will be able to tackle the inter-language variation question: why is it that some languages (notably Semitic and possibly Celtic languages) have CSN, while others do not?

Below, I will argue that the key to the existence and the properties of CSN is the fact that in Semitic ±definite specifications are features base generated on a lexical head.

Specifically, the account that will be proposed here for the properties of CSN does not try to derive the definiteness effects (the distribution of articles, Definiteness Spreading) from syntactic structure. Rather, the assumption is that the definiteness effects are the basic ones, and the syntactic structure is their result.

7.1 ±Definite as a Feature

In Borer (1988) I suggest that ±definite in Semitic is a feature base-generated on the head, whose value can percolate up a word structure. Some evidence that ±definite in Semitic is, indeed, a feature, comes from the presence of definiteness concord in adjectives; a particularly striking case is repeated in (79):

(79) ha-yeled meSubac ha-xulca
the boy plaid the shirt
the plaid shirted boy

The reason (79) is striking is because the agreeing adjective, *meSubac ha-xulca*, 'plaid skirted', is itself a construct, containing a nominal which carries the ±definite specification. And yet, in sharp contrast with definite nominals, it is not referential, nor does it have any of the properties typically associated with DPs. Here, the definite article on *xulca*, 'shirt', is clearly an agreeing feature, without any semantic value whatsoever.

Another striking example is given by the synonymity of (80a) and (80b), both used side by side in Modern Hebrew (although (80a) belongs to a slightly higher linguistic register):

(80) a. yalda zot tikra 'et ha-Sir
girl this will-read OM the-poem
'this girl will read the poem

b. ha-yalda ha-zot tikra 'et ha-Sir
the-girl the-this will-read OM the-poem
'this girl will read the poem'

The presence of the article on a demonstrative is clearly semantically vacuous. There is absolutely no difference in meaning between (80a) and (80b). Furthermore, if the demonstrative, at some level of representation, occupies some D position, that position is plausibly in competition with the definite article (as it is in English). This thus further suggests that the definite article *ha* is merely a feature here, base-generated on the stem.

7.2 The Definiteness Criterion

The availability of ±definite as a feature specification on a lexical head patterns with another property assumed here for Semitic: D in Semitic is unspecified for its ±definite

value. Rather, it inherits it from a moved N thus specified. These assumptions are summarized in (81):

(81) a. ±definite in Semitic is a feature base-generated on the head N.
b. D in Semitic is inherently unspecified (at the base) for a ±definite value. It becomes definite as a result of a ±definite N moving into it.

I will further assume that Semitic does not have a [Spec,DP] position, and hence D cannot become ±definite as a result of Spec-Head Agreement between the head D and some nominal moving to [Spec,DP], overtly or covertly (in LF).

Suppose now that the formation of CSN is linked to the feature nature of ±definite. Specifically, suppose that the salient property of CSN is as given in (82):

(82) **The salient property of CSN**:
the N-head of CSN is base-generated without ±definite specification

Now clearly, CSN can be referential, and can be specified as ±definite. It thus follows that they are, indeed, dominated by a DP. Yet, if D in Semitic in inherently unspecified as ±definite and must inherit this feature from a moved ±definite N, a DP dominating an N generated without ±definite specification can never, itself, become ±definite.

Let us now assume, as is intuitively clear that such a situation leads to ungrammaticality. Specifically, while (83a) is a well-formed configuration, (83b) is not:

(83) a. D^m ±definite
D±definite N^m
N ±definite

b.* D^m
D N^m
N

Formalizing the intuition in (83) is the Definiteness Criterion in (84):

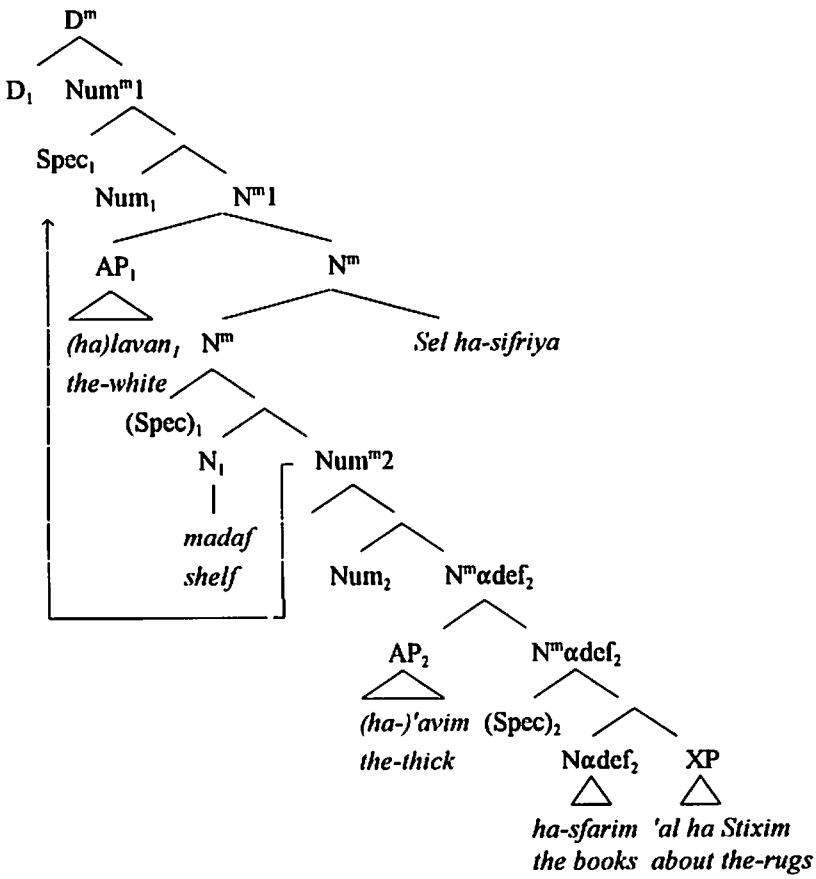
(84) **The Definiteness Criterion**:
a. D^m must be αdefinite
b. Nαdefinite iff Dαdefinite, where N and D are members of the same ExP.

The structure in (83b) fails the Definiteness Criterion on the first account: D^m is not definite. It is thus clear that if the head of CSN is generated without ±definite specification, but is dominated by D^m, there must be a way of providing the missing ±definite specification, or a violation of The Definiteness Criterion would result. It is for this reason, I claim, that incorporation must occur in CSN. Specifically, if the head of the complement nominal is specified as Definite, its incorporation onto the head of

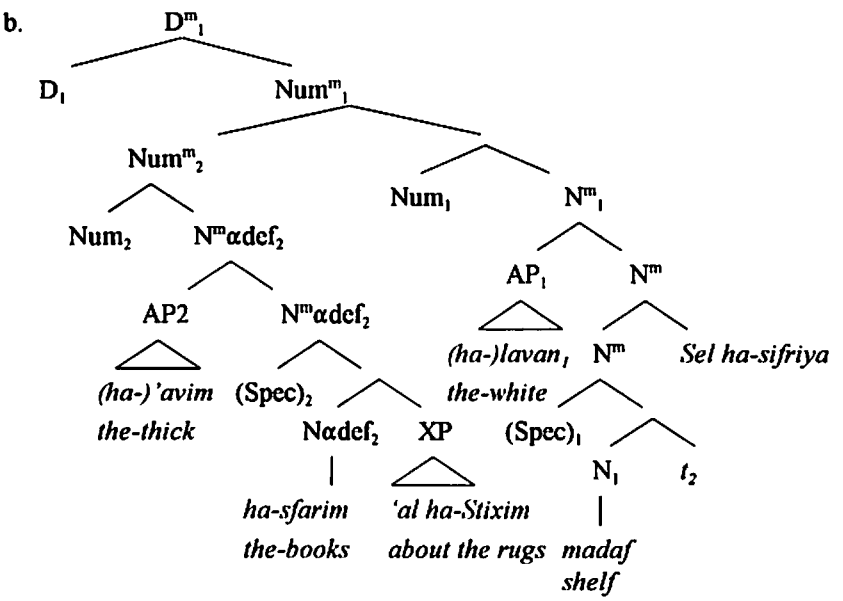
the CSN itself would render that N Definite, and movement onto D would result in D^m being Definite as well.

Recall, now, that I argued that the head of the complement, a non-maximal ExP, cannot incorporate directly into the head N. that head N being lexical. However, the head of the complement may incorporate directly into D, providing the structural configuration allows such incorporation. Suppose, then, that the complement, a NumP, moves into a position directly governed by D. This configuration is given in (85): [13]

(85) a.

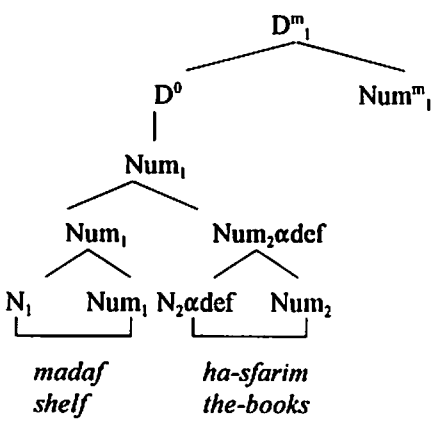


b.



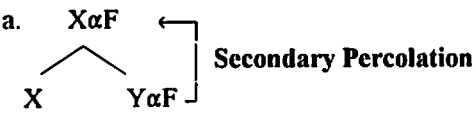
In (85b), D governs both Num_1 and Num_2. N2 incorporates into Num_2, and subsequently into D_1, an incorporation which complies with the conditions on incorporation in (66). N_1 incorporates into Num_1 and subsequently into D_1. The resulting structure of D is given in (86):

(86)



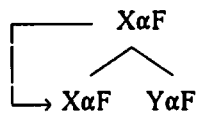
Several things should be noted with respect to (86). First, as D is empty, the movement to it is presumably substitution, rather than adjunction. As Num_1 is an ExP member of D_1, it is plausibly the head of D_1, moved by substitution, while Num_2 adjoins to it. The resulting configuration, in turn, allows Secondary Percolation (cf. Lieber, 1980; Borer, 1988): within a morphological structure, such as (87), and in the absence of some feature specification for the head, that feature may percolate from the complement. In

turn, the feature associated with the root node may percolate down to the head, by a convention of feature sharing internal to Extended Projections:

(87) a. 

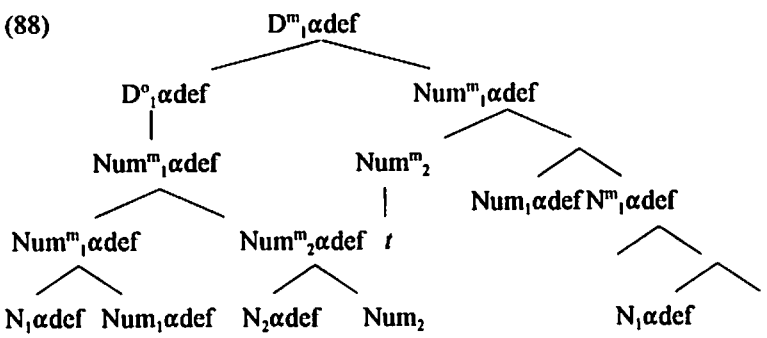
no specification for F

b. **by feature sharing internal to ExP**



Returning to the structure in (86), the feature αdef may now percolate from Num_2 to Num_1, and in turn, to D_1, and to N_1. In turn, by feature sharing, internal to ExP, $Num^m{}_1$, the trace of Num_1, N^m, and the trace of N_1 become αdefinite as well. The resulting structure is (88):

(88)



Reviewing the structure (88), it is clear that the relevant incorporation in CSN is not N_1+N_2, but rather Num_1+Num_2. This, however, clearly accords with the facts. As is well-known, both head and complement in CSN can carry number markers, both fully semantically transparent, and both triggering number agreement in modifying adjectives:[14]

(89) a. Sifrey ha-yeladot ha-'avim
book-pl.-m the-girl-pl.-f the-thick-pl.-m

b. Sifrey ha-yeladot ha-ktanot
book-pl.-m the-girl-pl.-f the-little-pl.-f

(88) is now fully compatible with the Definiteness Criterion: D^m_1 is αdefinite as required by clause (A) of the Definiteness Criterion, as a result of the incorporation of Num_2 which is αdefinite into Num_1 in D and secondary percolation D^m_1, now αdefinite, now dominates in turn an N^m which is αdefinite, by a feature sharing convention. Furthermore, the configuration formed by the movement of Num^m_2 to [Spec,Num_1], and the movement of both Num_1 and Num_2 to D results in the correct nested configuration for adjectives.

While the assumption that the movement is to [Spec,Num_1] is theory internal, empirical support for the positioning of the relevant nominal not only to the left of AP_1, but also to the right of the (incorporated) N1±N2 constituent, presumably in D, is available.[15] In this context, consider the following paradigm, already mentioned in section 5:

(90) a. ?*ha-'axila Sel Dan be-mehirut 'et ha-tapu'ax
davka 'axSav

the-eating of Dan quickly OM the-apple
exactly now

b. 'axilat Dan be-mehirut 'et ha-tapu'ax
davka 'axSav

eating Dan quickly OM the-apple
exactly now

Assuming now that the adverb may be adjoined to the embedded VP, but not to any $\bar{V}$ projection, the ungrammaticality of (90a) was already explained. However, if the CSN--complement is fronted to a position outside the VP, as the movement to a dominating [Spec,Num^m] would entail, (90b) is predicted to be grammatical: placement of the adverb between the subject of the VP and the complement of V is still compatible with adjunction to VP, following the movement of the subject.[16]

Further evidence comes from the paradigm in (91)-(92):

(91) a. madaf ha-sfarim ha-lavan
shelf the-books the-white-sg

b. madaf ha-sfarim ha-'avim
shelf the-books the-thick-pl.

c. ?madaf ha-sfarim ha-'avim ha-lavan
shelf the-books the-thick-pl. the-white-sg

d. madaf sfarim 'avim lavan
shelf books thick-pl. white-sg

e. *madaf ha-sfarim ha-lavan ha-'avim
shelf the-books the-white-sg the-thick-pl.

(92) a. *madaf ha-sfarim ha-lavan 'al ha-Stixim
shelf the-books the white-sg about the-rugs

b. madaf ha-sfarim ha-'avim 'al ha-Stixim
shelf the-books the-thick-pl. about the rugs

c. ?madaf ha-sfarim 'al ha-Stixim ha-lavan
shelf the-books about the rugs the-white-sg

While nested AP configurations in CSN are, to begin with, cumbersome, a crossing configuration, as in (91e) is clearly much worse. It was already noted that the configuration in (85b) generates the nested configuration directly. Consider, however, the positioning of complements. Specifically, note that (92a), where the head of the CSN-complement precedes the AP modifying the entire CSN, but its complement follows it, is completely ungrammatical. Considering, now, (93)-(94), note that the CSN complement, argued here to be Num^{m}_{2}, must precede any complementation of N_1 in its entirety:

(93) a. **misgeret me-'ec** Sel tmuna Sel xamaniyot
frame from wood of picture of sunflowers

b. **misgeret** tmuna Sel xamaniyot **me-'ec**
frame picture of sunflower from wood

c. ***misgeret** tmuna **me-'ec** Sel xamaniyot
frame picture from wood of sunflowers
(only has the interpretation of a wooden picture, not a wooden frame)

(94) a. **krixa mi-karton** Sel sefer 'al Stixim
a cover from cardboard of a book about rugs

b. **krixat** sefer 'al Stixim **mi-karton**
cover book about rugs from cardboard

c. ***krixat** sefer **mi-karton** 'al Stixim
cover book from cardboard about rugs
(only has the interpretation of a cardboard book, not a cardboard cover)

Let us now turn back to the questions in (78), and see how the account given in this section for the motivation for incorporation and its nature fares with respect to them. The questions are repeated here:

(78) A. If the head of a non-maximal functional ExP can only incorporate onto a functional head, how can the N+N combination in CSN be a word formed by incorporation?

B. If the complement in CSN is F^{m-n}, why is it referential?

C. What drives incorporation in CSN?

An answer has been given to (78C): incorporation in CSN is necessary in order to provide the DP dominating the nominal with the ±definite feature specification, by assumption missing on its own N head. In turn, and given the conditions on incorporation proposed above, the complement in CSN may not be a maximal ExP, and I suggested that it is a NumP.

Recall now that a non-maximal ExP can only allow its head to incorporate onto a functional head. However, following the preposing of the NumP complement, $NumP_2$, to [Spec,Num_1], a movement clearly empirically necessary, the incorporation of Num_2 (itself an incorporated form of N_2+Num_2) may incorporate into D, which, in turn, hosts Num_1, itself an incorporated form of N_1+Num_1. Thus the incorporation attested in CSN is that of Num_1+Num_2, and it is well-formed according to the conditions on incorporation. Thus the question in (78A) is answered as well. Finally, we now account for the referentiality of the complement of CSN, although it is base generated as a NumP, rather than DP: having incorporated into a DP_1, DP_1 can now serve as D^m for both $NumP_1$ and $NumP_2$, rendering both maximal ExP, and fully referential.

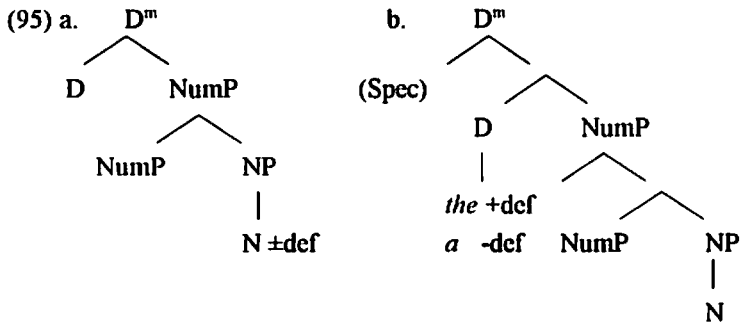
8. SUMMARY

By way of summary, let us speculate briefly on the nature of inter-language variation, such that an account can be suggested for the presence, vs. absence, of CSN in grammars.

It has been proposed here that the feature nature of ±definite specification, and its base-generation on nominal stems allows for CSN formation, by allowing the stem to be base-generated without such specification. In turn, the ±definite specification on the stem patterns with an unspecified D head, requiring N movement to it in order to render it ±definite.

Consider now a language such as English. Suppose in English ±definite is not a feature, as is plausible. English does not have definiteness concord, nor is there evidence for semantically redundant use of the definite article. On the other hand, D in English is directly marked as ±definite through the existence of an independent determiner. Thus,

while the structure of nominals in Semitic is as in (95a), the structure of nominals in English is as in (95b):



As an English D is directly marked for ±definite, and as stems are not thus marked, the configuration in Semitic, where an unmarked stem cannot transmit its properties to D, and thus requires incorporation, is not attested.

There is, however, one type of nominal in English which appears to be inherently marked as ±definite: proper names. Interestingly, Longobardi (1994) argues precisely for the N-to-D movement of such nominals in Italian, showing their syntactic position to differ from that of regular, non-inherently marked nominals. On the other hand, if the availability of ±definite as a feature on a lexical stem is in complementary distribution with the need for D to be thus specified at the base, we predict that proper names and articles should never co-occur in an English-type language, but could co-occur in Semitic. This prediction, although not perfectly correct, is clearly on the right track. Thus while Standard Arabic allows for the Definite marking of all names, English bars such marking, on the whole.[17]

A full typological study of the correlation between ±definite as a feature, the properties of determiners, and the presence of CSN nominals is clearly outside the scope of this paper. It is hoped that future research will shed more light on this correlation.

APPENDIX: THE COORDINATION PROBLEM

An interesting problem for the incorporation account for CSN (as proposed in Borer 1988, but applicable to the present work as well) is pointed out by Siloni (in press, 1994). Siloni notes that such incorporation would have to operate in violation of the Coordinate Structure Constraint, as exemplified by (A1):

(A1)beit ha-rabi mi-kiryat'arba ve-ra'ayato
house the-rabbi from-kiryat Arba and-wife-his

Recall that incorporation of a fully specified N (through a Num head) into an unspecified Num is necessary for CSN formation. In (A1), however, this N appears to

be *ha-rabi* 'the rabbi', originating within the coordinated phrase *ha-rabi mi-kiryat 'arba ve-ra'ayato* 'the rabbi from Kiryat Arba and his wife'.

On the other hand, it is not clear that the Coordinate Structure Constraint applies to Head Movement altogether. Thus consider the following sentence, discussed in Borer (1995):

(A2)ha-sefer katuv haya be-'otiyot ktanot
the-book written was in-letters small

In Borer (1995) I argue that the participle-copula order attested in (A2) is the result of head movement, adjoining the participle to the left of the auxiliary. Consider however, the following:

(A3)ha-sefer katuv haya u-mudpas be-otiyot ktanot
the-book written was and-printed in letters small

In this case, it appears, participle adjunction to the copula would require movement from a coordinate head structure, as the structure in (A4) illustrates (irrelevant details omitted):

(A4)[the book [$_{FP}$ was [$_{VP}$ [$_{V}$ written and printed] in small letters]

Similar cases of head movement which are in violation of the coordinate structure constraints are discussed by Tomioka (1992) in Japanese and are attested in languages argued to have long head movement (cf. Rivero (1991), among others).

Examining, however, the structures proposed above for CSN from the perspective of the Coordinate Structure Constraint results in the exposure of a number of other problems. Thus the assumption shared by Ritter (1991), Siloni (1994) and the present work, according to which adjectives are generated to the left of the modified NP, and the surface order is derived from head movement across them runs into problems as well in such constructions, quite independent of CSN, as (A5) exemplifies:

(A5)a. ha-rabi ha-loxem ve-ha-rabanit ha-xasuda mi-kiryat'arba
the-rabbi the-militant and the rabbi's-wife the-pious from Kiryat Arba

Recall that the positioning of the adjective to the right of the head comes about as a result of the movement of the N head to D. However, as is entirely evident from (A5), only one of the conjuncts can make use of D2, while the second N head has no landing site (note that an across the board raising of N would not be helpful, as it would predict that both N would precede both adjectives, contrary to (A5)).

For Hazout (1990), who adjoins APs in Hebrew to the right of the complementation domain, and hence requires no head movement to derive their placement to the right of the head, the placement of adjectives in (A5) does not appear to present a problem,

although another problem presents itself: the placement of the AP between the head and the complement PP can only follow, given rightward adjunction to $\overline{N}$, if PP is post-posed. Such a PP in (A5) would have to be post-posed from a coordinated structure. Yet another coordination problem plagues the Hazout account. Thus consider the sentence in (A6):

(A6)dirat ha-rav ha-yafa u-migraSav ha-rabim ba-'ir
apartment the-rabbi the-pretty and lots the-many in-the-city
(problematic for Hazout (1990))

According to Hazout, in (A6) *dirat*, 'apartment', must move to D for CSN to be formed. However, such movement would clearly be from a coordinated structure, and not a coordination of heads, either.

As clearly all accounts of CSN and the distribution of adjectives in Semitic are susceptible to problems with the CSC, two possibilities are available for a solution. Possibly, attempting to shed light on the structure of nominals in Semitic using head movement is misguided. Another possibility, however, is that the CSC, a rather poorly understood constraint to begin with, is suspended in these cases for reasons that must require additional explanation. One clear solution to these cases (which applies to the proposal advanced in this paper, as well as to the proposals advanced in Siloni (1994) and Ritter (1991) but is not helpful as far as Hazout (1990) is concerned) is to argue that coordinated nominals are always DPs, and that in cases such as (A5), in which a single PP modifies both conjuncts involves ellipsis or adjunction to the coordinated DP.

NOTES

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[1] (25a) is actually ambiguous between the reading given (*successful* having scope over *second*), and the reading assigned to (25b) (*second* having scope over *successful*). No such ambiguity is associated with (25b). This ambiguity seems to suggest that possibility of post-posing from the structure in (25b) to create the structure in (25a). I leave this matter to future research.

[2] See, especially, Siloni (in press), (1994), as well as counter-arguments in Borer (forthcoming).

[3] Shlonsky further argues that in the presence of a complement, an *agent* and a *possessor*, all three constituents can occur in any order. In my dialect, however, some combinations, notably head-*possessor*-*agent*-complement, head-*agent*-*possessor*-complement, are strongly dispreferred. The relative order of *agent* and *possessor* in NPs or its interaction with the order of complements, are largely irrelevant to this study, and in the examples below I will concentrate on the contrast between the distribution of the complement, on the one hand, and both *possessor* and *agent* on the other hand.

[4] See Hazout (1990) for arguments against a passive in VP analysis for (39). See Borer (1991, forthcoming) for counter-arguments.

[5] The impossibility of CSN formation with a (right-)adjoined DP predicts that FN may appear freely with a *possessor/agent* but no complement, but CSN of this form should be ungrammatical. The grammaticality of FN construction is illustratate in (i). CSN with a *possessor/agent*, on the other hand, are highly restricted, but at times, for poorly understood reasons, not fully ungrammatical:

(i) a. ha-tmuna Sel van gogh
the-picture of Van Gogh

b. ha-tmuna Sel ha-muzeon
the-picture of the museum

(ii) a. ?*tmunat van gogh
pictures Van Gogh

b. *tmunat ha-muzeon
picture the-museum

Rosen (1956) argues that *head+possessor* CSN is only possible if it indicates part-whole relations, plausibly complementation rather than *possessor*-head relationship, or inherent possession. The picture is more complicated, however. Thus plurality of the head N improves (although not beyond marginality) the ungrammaticality of (iia), but not of (ib). This, and related matters, are left for future discussion.

[6] This fact, note, is accounted for quite independently of whether a VP is involved in process nominals. Proponents of Complex Event Nominals (in the sense of Grimshaw, 1990) would only need assume that an argument structure is involved. In either case, realization of the subject without the object would be blocked.

[7] Note that it is not possible to assume that the *possessor* in non-process nominals is sometimes an adjunct, accounting for NOS orders, and sometimes in [Spec,NP] accounting for NSO orders, as the latter configuration would erroneously allow the subject to move to [Spec,FP] contrary to fact, allowing the formation of a CSN.

For the sake of completeness, one must exclude the possibility that *possessor/agents* in non-process nominals may be adjoined both to the left and to the right, thereby making object post-posing unnecessary. Some evidence that left adjunction is, indeed, blocked, comes from cases where a *possessor* is present alongside argumental subjects, as in (i). While (ia-d) might be cumbersome for some speakers, they are not ungrammatical, and they contrast sharply with the ungrammatical cases in (iia-d):

(i) a. hafakat hamlet 'al yedoy Branagh Sel teatron ha-renesans
production Hamlet by Branagh of the Renaissance Theater

b. hafakat Branagh 'et hamlet Sel teatron ha-renesans
production Branagh OM Hamlet of the Renaissance Theater

c. ha-hafaka Sel hamlet 'al yedey Branagh Sel teatron ha-renesans
the-production of Hamlet by Branagh of the Renaissance Theater

d. ha-hafaka Sel Branagh 'et hamlet Sel teatron ha-renesans
the-production of Branagh OM Hamlet of the Renaissance Theater

(ii) a. *hafakat hamlet Sel teatron ha-renesans 'al yedey Branagh
production Hamlet of the Renaissance Theater by Branagh

b. * hafakat Branagh Se l teatron ha-renesans 'et ham let
production Branagh of the Renaissance Theater OM Hamlet

c. *ha-hafaka Sel teatron ha-renesans Sel hamlet 'al yedey Branagh
the-production of the Renaissance Theater of Hamlet by Branagh

d. *ha-hafaka Sel teatron ha-renesans Sel Branagh 'et hamlet
the-production of the Renaissance Theater of Branagh OM Hamlet

If, indeed, left adjunction of the *possessor/agent* were possible, we would predict the grammaticality of (iia-d) to be exactly on a par with that of (ia-d). That this is not so indicates that left adjunction is excluded.

[8] A problem with Hazout's (1990) right adjunction of adjectives which is not addressed here in detail is the fact that his structure erroneously predicts the grammaticality of (24b).

[9] A hidden assumption connected with the configurations in (65)-(66) must be made explicit: I assume that non-maximal ExP may only be missing functional projections from the top down, thus, assuming the maximal F projection for V to be C, Agr^{o} :: V is a possible non-maximal ExP, but C :: V is not.

[10] For a similar idea, see Koopman, (1994), where it is argued that non-maximal lexical projection may satisfy their functional selection matrix through incorporating onto other lexical projections.

[11] Interestingly, Construct State Adjectives could function as referential nominals, as in the following

(i) meSubac ha-xulca higi'a.
plaid the shirt arrived
'The plaid shirt arrived.'

In (i), *meSubac ha-xulca* 'the plaid shirt' is clearly not an agreeing adjective, but a referential nominal, serving as the subject argument of *higita* 'arrive'. Plausibly, in this case the AP is dominated by a DP, rendering it referential. The option of being dominated by a DP, thereby becoming referential, is available for all adjectives in MH, as it is, peripherally, for English (Cf. *The Good, the Bad and the Ugly).* In fact, as noted by Longobardi (1994), it is only in the presence of an overt definite article that such adjectives may be used as referring expressions. When AP is not dominated by a DP, and hence not a referring expression, it is, presumably, dominated by some functional projection unique to modifiers, possibly a degree phrase. These issues are not pursued here any further.

[12] The binding properties of complements in CSN may appear, at first sight, to contradict the claim that the CSN is a word. Recall that bound pronouns could not be licensed from within CSN. The difference is, however, that in the latter case QR was necessary, and it is precisely that operation which is blocked from inside a word. This, I assume, is not the case for anaphoric binding.

[13] For the sake of simplicity, the functional projection dominating AP is ignored in these structures.

[14] The situation depicted in (89) contrasts with the situation in compounds, which share many of the properties of CSN, but where the complement of CSN is never semantically transparent, and may never be modified by an adjective or take a complement (see Borer (1988) for discussion). Likewise, in Construct State Adjectives, the complement N may be plural, as in *'adom re'afim*, 'red slated' literally red slates, but the plurality of *re'aSm 'slates'* is semantically vacuous here, cannot be modified and cannot take a complement. Further, Hebrew allows us to express an identical meaning with the singular, *'adom ra 'at* literally red slate although there may be numerous slates.

[15] Recall that the movement of the relevant nominal constituent in CSN, but not in FN, over the adjoined adjective is argued for by Ritter (1991) and Siloni (1994) as well.

[16] A general problem concerns the impossibility of the following word orders in both sentential VPs and VPs embedded in process nominals::

(i) *XP adv subj V obj
*la-yeladim ba-xaSay Rina Salxa matanot
to-the-boys secretly Rina sent presents

*XP V adv subj obj
*la-yeladim Salxa ba-xaSai Rina matanot
to-the-boys sent secretly Rina presents

(ii) N±V adv subj t obj
*ha-miSlo'ax ba-xaSay Sel Rina 'et ha-matanot
the-sending secretely of Rina OM the-presents

While the parallelism between VPs in sentences and in process nominals is maintained here, within the VP-internal hypothesis no direct account is available for the ungrammaticality of (i)-(ii).

[17] Well-known exceptions to this generalization are proper names such as *The Bronx* in English, or *La France*, in French. For some interesting discussion which is couched in terms rather similar to those proposed in this paper see Longobardi (1994).

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