PREDICATES ACROSS CATEGORIES: TOWARDS A CATEGORY-NEUTRAL SYNTAX

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Summary
by the author

The approach to predication advocated here is part of a more general theory of how predicates come to be construed with operators. Operators may be divided into two classes according to whether they take scope over a predicate (e.g. Mood, Tense, Negation, ...) or over an argument (e.g. *some, all, wh,* ...). Ultimately, it may be possible to reduce all scopal relations to a general construal condition: for X to be construed with an operator, X must be in the domain of the operator. This study can then be understood as investigating those configurations where the value of X = "predicate".

According to an Aristotelian view maintained in modern linguistics, a sentence consists of a predicate, a subject and some indication of tense. This work attempts a principled and coherent account of the Aristotelian sentence, in the framework of modular generative grammar. From the starting point that predication is a licensing relation — the Π-relation — a category-neutral theory of predication becomes possible. This in turn has consequences for two domains of grammar: "inside" the predicate, and "outside" of it.

1. Inside the predicate

1.1. Category features

A prior step in the construction of a category-neutral theory is to establish which categories are available to linguistic theory. A starting point is the traditional division between open-class items and closed-class items, restated as a distinction between **lexical categories** (verbs, nouns, prepositions and adjectives) versus **functional categories** (complementizer, tense, aspect, determiner, etc.). Amongst lexical categories, crosslinguistic evidence shows that V and N have a privileged status, and this in at least three domains. First, in terms of lexicalization patterns, if a language makes a lexical category distinction, then V and N will be distinct. Conversely, if a language lacks certain lexical categories, it will be either P or A (or both). Second, V and N are syntactically atomic in that they are uniquely selected by a functional head: V is selected by Tense; N is selected by Det. P and A are not atomic in this sense, i.e., there is no functional category that they are uniquely selected by. A third property grouping V and N together is the fact that they are associated with an "extended projection", defined as the potential set of functional heads which dominate V or N. The extended projection of V is the chain of heads formed by V, Tense and Comp, cf. (1a). The extented projection of N is the chain of heads formed by N, Det and Kase (a term which subsumes morphological and and structural case), cf. (1b). P and A are not associated with extended projections: this is in turn related to the fact that they fail to be uniquely selected by a functional category.

(1)
a. $[_{CP}$ C $[_{TP}$ T $[_{V}$ V ...]]] extended projection of V
b. $[_{KP}$ K $[_{DP}$ D $[_{N}$ N ...]]] extended projection of N

These considerations support a revised category feature set, consisting of [±referential], [±nominal], and [±functional]:

(2)
a.

		[+Referential]	[–Referential]
[–Functional]	[–Nominal]	Verb	Preposition
	[+Nominal]	Noun	Adjective

b.

		[+Referential]	[–Referential]
[+Functional]	[–Nominal]	Tense	Comp
	[+Nominal]	Determiner	Kase

The system in (2) allows a restatement and sharpening of generalizations about category membership and crosscategorial generalizations. V/N vs. P/A are distinguished as [+referential] and [−referential], respectively. That F/A are not selected by a functional head follows from their specification as [−referential]. The asymmetry between referential and nonreferential heads also holds of functional heads: as referential functional heads, Tense and Determiner select lexical phrasal complements; as nonreferential functional heads, Comp and Kase do not.

If the feature values in (2) are viewed as privative, this predicts that only positively specified features will be active, i.e., there should be a "privative effect". Derivational morphology indirectly supports this: derivational affixes morphologically select heads that bear a positive specification (either [+nominal] or [+referential]); and the output of a derivational operation must also bear a positive feature specification. Under this view, the nonparticipation of P in derivational morphology is attributable to the fact that it has no positive feature specification, being defined as [−functional, −referential, −nominal]. The privative effect is also seen in the acquisition sequence: subjects initially surface with genitive, rather than the expected nominative. If genitive Case indicates a nominal projection, this suggests that at the outset the core functional projection is nominal, consistent with the claim that [+nominal] is privative.

A residue of this feature system is the traditional category "adverb". Using distributional tests, one observes that adverbs and adjectives are in complementary distribution: adjectives modify N; adverbs modify all other lexical categories (V, P, and other adjectives and adverbs). Several kinds of evidence are consistent with the idea that adjective and adverb constitute a single category A: adverbs are regularly formed from adjectives by an affix which denotes something like 'manner' (English *-ly,* Italian *-mente,* French *-ment*); adverbs which do not end in *-ly* take the same form as the corresponding adjective (*writes good, runs fast, works hard*); the comparative of the adverb is formed in the same way as for the adjective (*more quickly*); adjective and adverbs takes the same modifiers (*very, rather, quite, so, too,* etc.); if an adverb takes a complement, it takes the same range of complements as the correponding adjective (*independently of me, unfortunately for Sally*).

1.2. Categorial inventories

The system in (2) is based on evidence from English. A question that arises is to what extent it can be generalized to other languages. Detailed examination of lexical and functional categories in Yorùbá (Kwa, Niger-Congo) reveals significant differences in both the actual content and inventory of categories.

Contentwise, functional projections associated with N and V are often segmentally null, so that Yorùbá lacks tense morphemes such as English *-ed,* determiners such as English *the* or *'s,* and complementizers such as English *that.* Although Yorùbá functional heads sometimes lack morphological content, they are nevertheless projected as syntactic positions. The relevant evidence comes from the interaction of tone and syntax: under appropriate conditions, there is a prosodic spell-out of null functional heads by default high tones. This includes Tense (the high tone syllable occurring between the subject and the VP), Det (the high tone associated with reduplicative syntactic nominalization), Kase (the high tone associated with object clitics), and perhaps Comp (the high tone associated with verbs which take clausal complements, e.g. *pé* 'say' and *ní* 'say').

With respect to categorial inventory, there are two kinds of split. Amongst lexical categories, Referential V and N are clearly present, while nonreferential categories are nearly or completely absent in Yorùbá: P is a closed class (only two members), and A does not exist as an independent category. Amongst the functional categories, non-nominal Tense and Comp license a specifier position, nominal D and K do not. Within the feature system in (2), Yorùbá is subject to the following restriction: a nonfunctional category must be selectable by a functional category. Consequently, only V and N are lexical categories in Yorùbá, since only V and N are selected by a functional category, namely Tense and Det. In addition, one must stipulate that for Yorùbá, functional heads associated with the extended projection of V (Tense and Comp) license a specifier position, but functional heads associated with the extended projection of N (Det and Kase) do not. As for the presence of P as a closed class in Yorùbá, this is expected if P is a default category, defined as the absence of positively specified features: [−functional, −referential, −non-nominal].

1.3. Selection

The feature system in (2) embodies a claim about how categories relate to each other, both language-internally and crosslinguistically. With this in place, it is possible to address the question of how arguments associated with a predicate head are projected. Two principles determine how a predicate is associated with its arguments: the Single Argument Hypothetis (SAH) and the predication relation (Π-relation). If predication is category-neutral, then all lexical categories are potential predicates, appearing either as "primary" matrix predicates (*Sally will sing, Sally is a good doctor, Sally is at ease, Sally is happy*), or as "secondary" predicates (*Sally left the bar in shambles, Sally left the bar in a mess, Sally left the bar messy*). This represents a significant conceptual break from the Port Royal tradition (maintained in much generative work), which assumes that only V and A are "natural predicates". Given the close connection between predication and valency (argument structure), this raises the possibility that valency is also category-neutral, something

explicity denied by many researchers. The null hypothesis, unless proven otherwise, is that valency reduces to a lexical head assigning a lexical-semantic role to its complement. This is the Single Argument Hypothesis:

(3)
Single Argument Hypothesis (SAH)
A lexical head has a single (internal) argument.

If valency is restricted in this way, the redundancy between predication and semantic-role assignment is abolished: complements are licensed by semantic selection (the θ-relation), and non-complements by predication (the Π-relation). And if valency is truly category-neutral, then the same transitivity differences found for verbs should also be found with nonverb predicates. This has the immediate consequence of forcing a reappraisal of the standard diagnostics used to establish valency, which include: (i) *wh*-binding of the complement position (*Whati does Sally like* ec_i*?, the musici that Sally likes* ec_i); (ii) existential quantification of a null complement (*Sally ate* ≡ *Sally ate something*); (iii) generic quantification of a null complement (*My dog bites* ≡ *My dog bites everything*); (iv) inalienably possessed complement (*Sally*$_i$ *lost her*$_{i/*j}$ *way*); (v) reciprocal interpretation with plural subject (*Sally and Jane met* ≡ *Sally and Jane met each other*); (vi) a bound null complement (*Sally washed* ≡ *Sally washed herself*; (vii) passive (*Sally was seen at the bar*). Of these seven diagnostics, the first five apply to all lexical categories uniformly. The last two tests are restricted to verbs (bound null complement, passive), but on independent grounds it can be shown that they only apply to affecting predicates, thereby automatically excluding nonverb predicates which are canonically stative, and so non-affecting. Thus, there is little justification for the standard view that verbs are the loci of lexical-semantic information *par excellence;* on the contrary, there is less in verbs and more in nonverbs than current theories of argment structure ran easily accommodate. Given these results, it is undesirable to reify lexical categories by assuming too much uniformity within categories, and too much heterogeneity across them. One consequence of the SAH is that only the complement position is directly licensed by semantic selection (θ-role assignment). But then how are non-complements — subjects and indirect objects — licensed? The answer given here is that both are licensed via a predication-relation (Π-relation) to a lexical projection, cf. (4). Intuitively, (4) wants to say that a predicate is Π-related to a position that is contained in a projection that also contains the predicate.

(4)
Π-related (predication-related)
α is Π-related to β iff β precedes α, β does not dominate α; γ, γ the local governing projection of β, does not exclude α; and there is no intervening position λ to which α is Π-related.

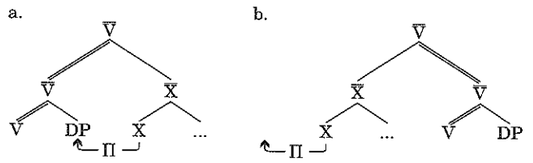
A first result of distinguishing the Π-relation from the θ-relation is that subjects are necessarily projected external to the lexical projection; this is the the **external subject hypothesis:** The external subject hypothesis requires that impersonal subjects (expletive *there,* the meteorological *it* of *It was raining ...*) be licensed by the Π-relation. It also requires a restatement of the unaccusative/unergative distinction, since by hypothesis all predicate heads project a complement, and all predicate heads are Π-related to the subject.

1.4. Adjunction

The SAH restricts syntactic representations by stipulating a one-to-one correspondence between a lexical head and its (internal) argument. As no predicate licenses more than a single complement, all constructions with more than one complement must have more than one predicate head. This "necessary option" corresponds to bivalent projections: a lexical projection containing two (or more) heads. Bivalent projections account relatively easily for English adjunct predicates and coordinate constructions, serial constructions in Yorùbá, Ìgbo, Haitian and Chinese, and consecutive as well as auxiliary verb constructions in Korean and Japanese.

The SAH entails a major role for adjunction in phrase structure. Holding constant other assumptions (binary branching, locality of the θ-relation), the SAH forces secondary predicates (*Sally submitted the book unfinished*) and prepositional phrases (*Sally sold a book to Sal*) to occupy the right adjunct position $\bar{X}$ in (5a). (5a) is a bivalent projection in that two lexical heads share a single predicate domain. The SAH is also consistent with the option of leftward phrasal adjunction in (5b). The non-complement positions notated $\bar{X}$ in (5) are licensed by the Π-relation: if $\bar{X}$ is a right adjunct it is Π-related to a position within the $\bar{V}$, (5a); if $\bar{X}$ is a left adjunct it is Π-related to a position external to $\bar{V}$ (usually the subject), (5b).

(5)



(5b) is not usually consideed to be possible in English, where adjuncts typically occur on the right. Strictly speaking, however, the head-initial/head-final distinction is only relevant for the complement relation, and this is satisifed in (5b): each complement follows its head. There is a type of construction with all the properties predicted by (5b), namely, asymmetric or "fake" coordination, e.g. *Sally went to the store and bought some whiskey*. Fake coordination fails to have the properties associated with normal coordination: the terms are not commutable (with normal coordination they are); the terms are not semantically autonomous, as evidenced by the impossibility of inserting elements such as *both, too, also* and *too* (such combinations are fine with normal coordination); interrogative and negative operators obligatorily take wide scope (with normal coordination scope is over the first or second term); the second conjunct may be extracted (a violation of the Coordinate Structure Constaint); the two terms must have the same subject and same tense.

The bivalent-projection analysis provides a unified theory of adjunct predicates. Depictives, resultatives and double complement constructions are all analyzed as bivalent projections headed by the initial verb; asymmetric or fake coordination is analyzed as a bivalent projection headed by the non-initial verb. Consistent with the category-neutral approach, the bivalent-projection analysis extends to nonverb predicates, so that in addition to bivalent $\bar{V}$s, there are bivalent $\bar{N}$s (*Lucie is a genius of a teacher*), $\bar{A}$s (*The water is boiling hot*) and $\bar{P}$s (*Sally played the banjo from Alberta to Saskatchewan*). These all have the structure in (5b), where the second term is the "main" predicate, with the initial term left-adjoined to it.

By hypothesis, the structures in (5) are made available by Universal Grammar, and so we expect to find evidence for their existence in other languages as well. I propose that verb serialization provides further examples of bivalent projections, where the value of X = V. A serial-verb construction is a succession of verbs and their complements (if any) in a single clause with one subject and one tense or aspect value. Language-particular differences in the surface syntax of bivalent projections (e.g. in English X ≠ V, in Yorùbá X = V), follow from independent constraints on the relation of Tense to the predicate head. The bivalent-projection analysis also extends to Chinese, and permits a solution of Huang's (1982) headedness paradox. And for Korean and Japanese, it offers a coherent account of the syntactic properties of the *-e* and *-te* constructions, respectively. The bivalent-projection analysis also demystifies the relation between serial-verb constructions and V–V compounds: where some languages have serial constructions (6a, b), others have V–V compounds (6c–e).

(6)

a.	Jímọ́ ọ́ ra èwù bùn mi Jímọ́ AGR buy garment present 1SG 'Jímọ́ bought me [a] garment'	Yorùbá
b.	Tā mài shū gěi Zhāngsān 3SG sell book give Zhangsan 'He sells books to Zhangsan'	Chinese
c.	Ó bì-nye-re Adhá akwà 3SG borrow-give-rV Adhá cloth 'She/He lent Adha [some] cloth'	Ìgbo
d.	Ku-nun Swuni-eykey pimil-ul malha-e he-TOP Swuni-DAT secret-ACC tell-*e* cwu-ass-ta give-PAST-DECL 'He told Swuni the secret for her'	Korean
e.	John-wa Mary-ni ie-o tate-te age-ta John-TOP Mary-DAT house-ACC build-te give-PAST 'John built a house for Mary'	Japanese

It is not the case that Ìgbo, Korean and Japanese use a "compounding" strategy wherever Yorùbá and Chinese use a "serializing" strategy. As illustated in (7), in other contexts these same languages all use serial verb constructions:

(7)

a.	Jímọ́ ọ́ mú ọwọ́ jẹ iyán Jímọ́ AGR take hand eat pounded-yam 'Jímọ́ ate pounded yam with his hand'	Yorùbá
b.	Tā yòng zhèbǎ yaòshi kāi-de mén 3SG use key this open-*de*-door 'He opened the door with his key'	Chinese
c.	Ó jì ḿmà bḥá-a jí 3SG hold knife peel-ASP yam.GEN 'She/He peeled yam[s] with [a] knife'	Ìgbo
d.	Ku-nun koki-lul kuw-e ton-ul he-TOP meat-ACC broil-*e* money-ACC pel-ass-ta earn-PAST-DECL 'He told Swuni the secret for her'	Korean
e.	Watasi-wa hashi-o tsukat-te gohan-o I-TOP chopstick-ACC use-*te* rice-ACC tabe-ta eat-PAST 'I used chopsticks to eat rice'	Japanese

Language-internal evidence establishes that the constructions in (6) have the structure in (5a), i.e., they are headed by the first V. As for the constructions in (7), they have the structure in (5b), i.e., they are headed by the second V. The surface V–V compounds (6c–e) arise in Ìgbo and Korean/Japanese by movement of V2 to V1, and the raising of the [V1 V1–V2] complex to Tense. The S-structure interaction of V-incorporation with Case-marking differs in the two language types. Ìgbo V–V compounds resemble applicative constructions: the argument θ-related to the incorporated head — the dative DP2 — is adjacent to the complex V (Marantz 1984, 235). In Korean and Japanese, the argument adjacent to the complex V is the accusative-marked DP1 — the one θ-related to the incorporating head. Once this is taken into account, the similarity of V–V compounding in the two systems becomes transparent. Syntactic adjunction to a verb projection, while free in principle, is constrained by a semantic template consisting of two terms (event and state) and an ordering relation (precedence). This yields four possible combinations: [*event event*], [*state event*], [*event state*], [*state state*]. This notion of event composition generalizes across a wide variety of construction types, including adjunct predicates, fake coordinate structures, serial verb constructions, and V–V compounding.

2. Outside the predicate

The second part of the dissertation considers how predicates are related to the other elements of the Aristotelian sentences — tense and the subject. Three problems are investigated: the status of the predicate as a syntactic position, the Tense-marking of predicates, and subject agreement. All these concern the interaction of lexical and functional projections.

2.1. The predicate position

If predication is truly category neutral, the position labeled $\bar{X}$ in (8) is predicted to have the status of a syntactic constituent.

(8)
Jan might [$_{\bar{X}}$ translate the book]
Jan might be [$_{\bar{X}}$ an anarchist]
Jan might be [$_{\bar{X}}$ brilliant]
Jan might be [$_{\bar{X}}$ at the demonstration]

Previous passes at this question have been hampered by the failure to systematically distinguish three kinds of syntactic processes: those which pick out the predicate projection (X̄), those which pick out sister-to-Tense, and those which pick out sister-to-V. A process which targets X̄ will group main verbs together with nonverb predicates (9a), e.g. X̄-ellipsis, X̄-movement, X̄-conjunction, X̄-modifiers. A process which targets the sister-to-Tense position will treat a verb predicate in the same way as it treats the [*be* X̄] consitutent (9b), e.g. V̄-ellipsis. A process which targets sister-to-V will treat the complement of a main verb in the same way as it treats the nonverb predicate introduced by the copula (9c), e.g. French complement clitic *le, how* movement, and the *it pro* form.

(9)

	target	groups together
a.	X̄	{verb predicate, nonverb predicate}
b.	sister-to-T	{verb predicate, *be*-projection}
c.	sister-to-V	{complement of main verb, complement of *be*}

Most significant is the fact the lexical projection of the predicate head, as well as the verbal projection of the copula, are both targets for syntactic processes. The former challenges theories which claim that nonverbal head do not constitute autonomous predicative domains. The latter challenges analyses which claim that the copula does not head its own verbal projection.

2.2. Tense-marking

Many languages permit matrix bare predicates, i.e. predicates with no overt inflection

(10)

a. On v komnate — Russian
3SUBJ:NOM in room
'He [is] in the room'

b. Bruce in the house — African American English
'Bruce is in the house

c. Dani al ha-gag — Modern Hebrew
Dani on the-roof
'Dani [is] on the roof'

d. Timoun yo nan lakou a — Haitian
child DET LOC yard DET
'The children [are] in the yard'

Bare predicates also occur in English, though not in matrix sentences (11a). Examples of adjunct and embedded bare predicates are given in (11b, c).

(11)

a. *Sally [drunk] — matrix bare predicate
b. Sally drove home [drunk] — adjunct bare predicate
c. The waiter saw Sally [drunk] — embedded bare predicate

One open question is the typological relationship between (10) and (11). While all languages allow nonmatrix bare predicates (either adjoined or embedded), not all languages allow matrix bare predicates. In current theories of tense-marking, this matrix/nonmatrix asymmetry in the distibution of bare predicates is mysterious. Dropping the verb-centric assumption that V is the privileged target of tense-marking allows new understanding of the relation between the lexical projection of the predicate head and the functional projections of Tense and Aspect. The syntax of tense-marking is determined by the **Predicate Visibility Principle** and the **c-selection constraint.** In order for a predicate to be visible for θ-relatedness and Π-relatedness, it must be in the c-command domain of Tense:

(12)
Predicate Visibility Principle
A predicate is visible only if it is c-commanded by Tense. Tense-marking is also subject to a morphological constraint.

(13)
c-selection constraint
Morphological tense categorially selects (c-selects) V.

Now, it is the c-selection constraint which rules out (11a). A verb projection must be sister to Tense; this induces the presence of the copula *be,* giving *Sal is drunk.* The c-selection constraint holds of other functional heads (specifically Aspect, Affirmation and Negation), and opens a window on the English inflectional system, accounting for a number of otherwise random differences in the inflection of verb versus nonverb predicates.

If the Predicate Visibility Principle extends to bare matrix predicates, e.g. (10), then they too must be in the scope of Tense. This leads to the **TP hypothesis:** all matrix predicates have a Tense projection. Even if tense does not have morphological content, it is still present as a syntactic position. Though differing in the syntactic effects of [$T_{\emptyset}$], each of the four languages illustated in (10) supports the TP hypothesis — the claim that a Tense Phrase is universally projected in matrix clauses. The individual analyses also explore the syntax of aspect, agreement and Case, and the semantics/pragmatics of temporal reference. Russian provides evidence bearing on the relation between Case-marking, tense-marking and the stage-level/individual-level distinction. As widely held in the literature, languages with bare matrix predicates as well as copular constructions in the "present" display a stage-level/indiviidual-level distinction: bare predicates are canonically interpreted as individual-level (permanent) properties; copular constructions are canonically interpreted as stage-level (temporary) properties.

Russian shows that this correlation is not absolute, and is even neutralized in some contexts.

African American English differs systematically from Standard American English in allowing null Tense alongside a rich aspectual system. Taking this into account, a number of differences in surface morphology are immediately accounted for.

Modern Hebrew, which has morphological agreement and null Tense, shows that agreement is determined relative to two different domains: the lexical projection of the predicate head, and the functional projection of Tense. In the lexical domain, **predication agreement** (Π-agreement) holds between the predicate head and the subject. In the functional domain, **specifier–head agreement** (Spec–head agreement) holds between the specifier and the head of a functional projection,. Interactions of tense and agreement with Neg-placement, second-position effects and Case morphology provide supporting evidence.

The TP-hypothesis also clarifes the relation of syntactic Tense to temporal reference. The principles determining the temporal reference of bare predicates seem to hold universally, and begin to solve the intepretation problem noted by Hjelmslev 1948: why do the aspect, tense and mood of nonfinal sentences contrast systematically with overtly inflected sentences? Haitian is treated as as a null-Tense language where the temporal force of bare predicates is determined by the inherent semantic properties of states vs. events, plus discourse principles.

The Predicate Visibility Principle requires that predicates be c-commanded by Tense. Together with the projection system, it results in highly constrained phrase structures and a sharp difference in the selectional properties of lexical and functional categories. Lexical categories (V, N, P, A) impose s(emantic)-selection. Functional categories (T, D, C, K) impose c(ategorial)-selection. To account for the relation of Tense to the predicate, it is proposed that morphological Tense c-selects for a V-projection, thereby explaining the obligatory copula with a nonverb predicate. Instances where such a c-selection fails correlate with the option that Tense — while still present syntactically — may lack morphological content (the TP hypothesis). Since Tense is part of the extended projection of V, effects of c-selection are seen first in the V domain only. An open question is whether the functional heads which form the extended projection of N impose c-selection requirements in the same way that morphological Tense, Aspect and σ do. This leads to considerations regarding the theory of functional projections. While some functional projections are provided by Universal Grammar G (Tense, Det, Comp, Kase), others must be learned on a language-particular basis. Aspect and σ (affirmation and negation) are as quasi-functional: they may head a functional projection in sone languages, but need not universally. From the standpoints of acquisition and typology, while the syntactic properties of {T, D, C, K} fall within a very narrow range, quasi-functional heads are most variable.

2.3. Agreement

Agreement is a local relation between two positions. In the domain of the lexical projection there is predication agreement (Π-agreement) and in the domain of the functional projection there is specifier-head agreement (Spec–head agreement).

(14)
Π-agreement (predication agreement)
A predicate head agrees with the DP it is Π-related to (i.e. the subject) in number and gender features.

(15)
Spec–head agreement (specifier–head agreement)
The head of a functional projection with morphological content agrees with the phrase in its Spec-position in person features.

In a number of languages in which T has no morphological content, default (Spec–head) agreement may occupy it, with both overt and null subjects. Default agreement in Ìgbo is the *É*-prefix, (16). Default agreement in Yorùbá is either the "High Tone Syllable" (17a) or *ó* (17b). Default agreement in Modern Hebrew is the *H* "pronominal agreement", (18).

(16)
Òweré Ìgbo
a. Ékẹ̀ é-rí rin à
Ékẹ̀ AGR-eat-NEG food this
'Ékẹ̀ did not eat the food'
b. *pro* È rí-hún rin à
AGR eat-NEG food this
'This food was not eaten'

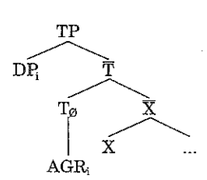
(17)
Standard Yorùbá
a. Bọ́sẹ̀ é lọ sí oko
Bọ́sẹ̀ AGR go to farm
'Bọ́sẹ̀ went to [the] farm'
b. *pro* ó lọ sí oko
AGR go to farm
'She/He/It went to [the] farm'

(18)
Modern Hebrew
a. Ha-yalda hi pikxit
the-child AGR.SG.FEM smart
'The girl is smart'
b. pro Hu holex-et
AGR-SG.FEM walk-SG.FEM
'She walks/is walking'

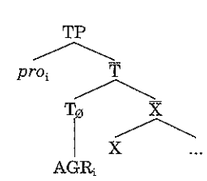
If just default agreement is present, the interpretation of the null subject is invariably '3rd person'. There are slight differences from language to language. In Ìgbo, a null subject has an "arbitrary" or "generic" animate interpretation, (16b). In Yorùbá it is discourse-linked to a relevant third person referent, hence the translation as 'she/he/it', (17b). In Hebrew, the agreement morpheme is specified for gender, with gender implying animacy, and so the null subject is interpreted as the salient animate (human) discourse referent, (18b). Despite these differences, all default agreement morphemes share in common that they have no inherent specification for person. As such, they may take as antecedent any DP, (19a). They may also license a null pronominal subject, (19b).

(19)

a.



b.



Default agreement clarifies a number of language-internal problems. For Ìgbo, it is crucial for the analysis of inflection, as it provides direct evidence concerning V-movement to a higher functional head. Conversely, the interaction of default agreement with auxiliaries is the key factor in establishing the absence of V-movement in Yorùbá. Default agreement also underlies the third person in Modern Hebrew. This analysis also extends to the English third person, to the French reflexive *se,* and to the Haitian focus marker *se*.

3. The border between "inside" and "outside" the predicate

Occasionally and in unexpected ways, problems concerning the domain "inside the predicate"

converge with those "outside" it. For example, in surveying syntactic processes which target the predicate projection $\bar{X}$ (where X = lexical V, N, A, P), it appears that "predicate conjunction" obeys a morphological constraint: two predicates can be conjoined only if they are tense-marked in the same way. Then, if predicate conjunction obeys a morphological rather than a like-category constraint, like-category conditions might dispensed with from grammar altogether, even in the DP-domain, in the interest of category neutrality. Conjunction itself is defined as two lexical projections sharing one Π-antecedent, providing a formal bridge between serial-verb constructions and coordinate structures, and capturing the intuition that the phenomena are related.

Another surprising convergence of the predicate's two sides (**in** and **out**) is the interaction of transitivity with temporal reference. Intransitive verbs divide into three classes according to the tense effects they trigger in Haitian bare sentences. In particular, unergatives are interpreted generically. Two independent proposals explain this. One, motivated by the Single Argument Hypothesis, defines unergatives as having an incorporated lexical constant. The other is motivated by the interaction of bare nouns with the temporal reference of syntactically transitive eventive verbs: a verb is interpreted generically if its complement is incorporated. Taken together, they predict that, since an unergative verb has an incorporated complement by definition, it must be interpreted generically in a bare sentence.

Review
by Jan-Wouter Zwart

Rose-Marie Déchaine's thesis *Predicates Across Categories* (PAC) is a classic study of the relations between the three parts of speech in a tradition ascribed to Aristotle: subject, predicate, and tense. Déchaine (RMD) argues that the subject is not related to the predicate through thematic role assignment, but through a new relation, the Π-relation, which is the subject–predicate relation. This yields a category-neutral conception of predication. Predicates headed by **all** lexical categories (N, A, V, P) are related to their subject in the same way, via the Π-relation. This is less clearly the case if subjects are related to predicates via thematic-role assignment, as categories other than V are not obviously doted with thematic properties in the same way as verbs are. Thus, *John* in *John is sick / a fool / in the garden* is to *sick / a fool / in the garden* what it is to *loves Mary* in *John loves Mary*. This raises the question what the copula *is* is doing there in *John is sick / a fool / in the garden*, and what governs the distribution of copular *be* across languages and constructions. This is where the third Aristotelian element, tense, comes in. RMD proposes that tense is associated with a functional head T which, if morphologically filled, subcategorizes for a verb phrase (VP). Copular *be* is analyzed as a verb, heading a VP. This VP intercedes between morphologically filled T and predicates headed by N, A, or P, in order to satisfy the subcategorization requirement on morphological tense. Languages without a copula in nonverbal constructions lack morphological tense, but *no* language lacks TP. RMD argues that zero tense in languages without morphological tense is relevant for the temporal interpretation of sentences, through interaction with aspectual properties of the predicate.

The Π-relation, which is defined structurally as well as linearly (the subject precedes the predicate), does a lot of work in the domain of multi-predicate constructions: serial-verb constructions, pseudo-coordinations, double-complement constructions (involving PPs), resultative constructions, and secondary-predicate constructions (involving subject depictives and object depictives). RMD assumes that the θ-relation (thematic-role-assignment relation) applies to a lexical head and its complement only, thus avoiding overlap of the Π-relation and the θ-relation. Moreover, there cannot be more than one complement, the **Single Argument Hypothesis.** It follows that multi-predicate constructions have binary branching structures, a conclusion reached in much research of the past decade. In RMD's analysis, the second predicate in all multi-predicate constructions listed above is adjoined to the projection of the head of the first predicate, giving rise to a projection dominating two heads (a **bivalent** projection). This yields a unification not reached in alternative approaches, involving Larsonian structures or small clauses.

Predicates Across Categories is an admirable work, in many respects. My copy has 548 densely printed pages, but I am told that the version that was originally filed had over 1,000 pages (the page reduction is the result of lay-out requirements, not of cuts). On top of that, the style is extremely crisp and the formulation (including the selection of quotations) is always to the point. One could call this book a collection of monographs (which could each be read independently of the others, to great advantage) if it were not the case that each monograph is remarkably consistent with all the others, each also contributing essential parts to the overall structure.

Also remarkable is RMD's respect for descriptive linguistics, not only in the way she incorporates the results of descriptive work in this thesis (the list of references is impressive, and references in the text are almost always in the form of exact page references), but also in the fresh way she presents and discusses well-known facts and paradigms from English. It appears to me that getting the descriptive part right is an important part of our work, if only because an explanation distilled from description often turns out to be a more sophisticated description, crying out for further explanation (a.k.a. progress).

In the remainder of this review, I would like to discuss some of the more important theoretical proposals that RMD makes.

First of all, there is the proposal that subjects and predicates are related through the Π-relation. At first glance, this may not seem to be a giant step ahead, but I think that would be hasty judgment. RMD is careful to point out that the current conception of the subject–predicate relation in the Principles and Parameters approach (or later, for that matter), involving external-θ-role assignment, nominative-Case assignment, and an extension of the Projection Principle (EPP) to the extent that the structural subject position must always be occupied, is inexact and insufficient at the same time. It is inexact in the sense that the structural subject position is "doubly licensed" (even if the subject is generated VP-internally, both the Case Filter and the EPP require the subject to occupy the structural subject position). It is insufficient in the sense that many instances of predication (including predication with nonverbal predicates) are not covered in the standard conception of the subject–predicate relation. RMD's Π-relation proposal therefore is nothing more, but also nothing less, than the first step in getting our perspective on the subject–predicate relation right (a step prepared by much recent work on predication, including Williams 1980; Stowell 1983; Rothstein 1983; Marantz 1984; Heycock 1991; Bowers 1993; etc.).

What's right about the Π-relation is that this relation is defined in a category neutral way. Its empirical coverage is much larger than the current system of θ-assignment *cum* Case assignment *cum* EPP. RMD rejects the one alternative which would be conceptually preferable, if executable, namely to generalize one of the well-known relations, θ-assigment, to cover all cases of predication (cf. Williams 1980). The reason I think θ-role assignment cannot be the generalized subject–predicate relation is that there is no obvious sense in which assignment of an external θ-role with a nonverbal predicate is part of the same system as assignment of an internal θ-role by a verb. (The simple fact that an external θ-role is **designated** in Williams 1980 already gives this away: the external θ-role is set apart from all other θ-roles.) Therefore, nothing is lost by passing over existing terminology and calling the subject–predicate relation just "Π-relation".

More interestingly, if there is a general Π-relation, the notion "external θ-role" is made redundant. This recalls Marantz' (1984) **single role hypothesis** (a head assigns just a single θ-role), leading to a simplification of the description of the thematic properties of heads.

RMD does not discuss much the commonly held view that subjects are generated VP-internally. In her view, subjects are generated in Spec,TP. The most convincing argument in support of the VP-internal subject hypothesis has always been conceptual: on this hypothesis, all θ-roles issued by a head are assigned within the projection of that head. Obviously, if subjects do not get a θ-role, this conceptual argument vanishes. (RMD, 184, fn52 briefly mentions that empirical arguments supporting the VP-internal subject hypothesis based on coordination of unergatives and unaccusatives (*they sinned and were punished*, see Burton & Grimshaw 1992; McNally 1992) cannot be reproduced in her analysis of coordination.)

On the other hand, nothing in the definition of the Π-relation excludes that the subject is generated as a sister to VP (or V′, assuming no distinction between the two here) rather than as a sister to TP. Apart from locality conditions, all that is required by the definition is that the subject precedes the predicate and that the projection of the sister of the subject does not exclude the predicate. The VP-internal subject hypothesis is tenable, on this definition of the Π-relation, as the predicate and the sister of the subject co-incide in that case, and the VP (the projection of the sister of the subject) does not exclude the predicate by definition (as it is also the projection of the predicate). RMD seems to assume that the **external subject hypothesis** she adopts follows from the distinction between θ-role assignment and Π-relatedness, but I fail to see how. If θ-role assignment defines the head-complement relation, there is every room for a VP-internal subject–predicate relation, without mixing up the θ-domain and the Π-domain (see also Heycock 1991).

On the other hand, accepting the external-subject hypothesis, it does not follow that the head introducing the subject has to be Tense, rather than a zero head **Pr** (as in Bowers 1993). The central role of Tense in PAC does not follow from the external-subject hypothesis, and is an empirical matter. This becomes relevant if we consider the structure of small clauses, an alternative for the bivalent projections proposed by RMD, at least for a number of constructions discussed in this context.

RMD analyzes ECM-constructions (*John considers Mary a fool*), which feature clausal complementation with a zero Tense head in the complement, and resultative constructions (*John ran the soles of his shoes thin*) differently. The latter are analyzed as involving a bivalent projection, with *the soles of his shoes* a complement of *ran* and *thin* a secondary predicate, left adjoined to the projection of the verb. This makes resultatives structurally akin to object depictives (*John submitted the manuscript unfinished*). A problem with this analysis of resultatives is that the head-complement relation between *ran* and *the soles of his shoes* is not justified by a thematic relation between *ran* and *the soles of his shoes*. In this sense, resultatives are comparable to ECM-constructions. Admittedly, it is not clear that *the soles of his shoes thin* can be analyzed as a propositional complement headed by zero Tense, just like *considers Mary a fool*. But it also is not clear that zero Tense is the only type of element that could head a propositional complement. If Bowers (1993) is right, all small clauses are headed by a zero head "Pr". This would make resultative complements structurally comparable to ECM-complements.

The absence of a θ-relation between *ran* and *the soles of his shoes* might be taken to illustrate that the head-complement relation is not defined by a thematic relation any more than the subject–predicate relation is. One wonders whether, after abandoning external-θ-role assignment, one could

take the additional step of doing away with θ-theory altogether. This is the approach taken by Hoekstra (1991), according to which the complement of a verb serves to introduce an end point to the event referred to by the verb. *The soles of his shoes thin* marks the end point of the running, thus creating an eventive predicate out of a stative verb. RMD's discussion of the redundancy of external-θ-role assignment makes one wonder why a discussion of the status of internal-θ-role assignment, with its consequences for the analysis of resultatives and other constructions for which a small-clause analysis has been proposed, has been left out.

There is some discussion of the properties of resultatives vis-à-vis depictives and ECM-constructions, but this is inconclusive (p. 145ff.). These matters are hard to settle on empirical arguments only.

Also disappointing is RMD's discussion of the dative alternation. The prepositional variant (*give a book to Mary*) is analyzed as a bivalent projection, with the PP adjoined to the projection of V. The prepositionless variant (*give Mary a book*) receives a different analysis: the indirect object is the complement of the verb, and the direct object is adjoined to the indirect object. A problem with this analysis is that it is not clear that the indirect object has the status of (direct) complement to the verb (a problem that has been with us at least since Chomsky 1981). The small-clause analysis (e.g. Kayne 1984) does not suffer from this problem.

It appears to me that adopting the small-clause analysis would not put RMD's analysis of predication in any kind of jeopardy. There may be a question as to what heads the small clause. Here, Bowers (1993) may be right in assuming that there is a Pr-element heading the small clause, or there may be an empty head for purely structural reasons (cf. Kayne 1994). Finally, it might be the case that Stowell (1983) is right in assuming that the small clause is just a projection of its head (the *Subjects Across Categories* hypothesis). None of these solutions is incompatible with RMD's definition of the Π-relation.

Perhaps, what blocks these possibilities is that they detract from the all-importance of tense in the proposed analysis of predication. Tense is what makes predicates visible (the **Predicate Visibility Condition,** requiring a predicate to be c-commanded by tense). Moreover, morphological tense requires the predicate to be verbal (via category selection). If there is no morphological tense, there still must be a TP, headed by zero T (the **TP-Hypothesis**).

The Predicate Visibility Condition is an extension of earlier proposals according to which a VP must be licensed by Tense (e.g. Fabb 1984; Guéron & Hoekstra 1988). If predication is category neutral, this requirement must be generalized over all predicates (p. 297).

However, although I agree with RMD that we should have a category-neutral theory of predication, it is not so clear that we can immediately transfer the visibility conditions proposed for VP to predicates of other categories. For Fabb (1984), the visibility condition is motivated by θ-theory: VP must be licensed in order for V to assign its θ-roles. But the importance of θ-role assignment is not so clear in other categories than VP (assuming that it is still relevant inside VP). For Guéron & Hoekstra (1988), Tense-marking is a defining characteristic of verbal projections, setting them apart from nominal projections. Again, a transfer of Tense-marking to nonverbal projections is not clearly called for. So, it may still be the case that tense is something that pertains to verbal projections in particular, for reasons that have nothing to do with predication.

RMD backs up her hypothesis that morphological tense c-selects for a verbal projection with a beautiful theory of categorization (p. 71). Taking a moderate approach to the architecture of the functional domain, RMD distinguishes four universal functional categories: Tense, Comp, Det, and Kase. Adopting a privative feature system involving three features ([functional], [referential], and [nominal], where V, T, D, and N are [+referential]), RMD reaches the following generalizations (my formulation):

(1)
An [α-functional] head c-selects an [α-referential] complement.

(2)
A [+functional], [α-nominal] head c-selects an [α-nominal] complement.

(3)
A [−functional] head selects a [+functional] complement.

For T, which is [+referential], [+functional], this implies that it c-selects a VP (V being [+referential] only).

Unfortunately, on p. 315, we understand that this c-selection property of T applies to morphologically filled T only. If T is not associated with any kind of morphology (zero tense), the complement of T can be a projection of N, A, or P (i.e. all lexical categories except VP). Taking the system outlined in (1)–(3) seriously, this can only mean that the zero tense element on p. 315 is not identical to the element identified as T on p. 71. The latter participates in the system in (1)–(3) and c-selects for VP, the former does not.

RMD presents a very interesting discussion of temporal interpretation in zero-tense languages (of which we all have judgments to some extent, if Headlinese is among the zero-tense languages, cf. Stowell 1991) (p. 432ff.). In the absence of an overt marker of temporal reference, the temporal reference is interpreted as overlapping with the utterance situation (p. 443). In that case, the predicate type is decisive for temporal interpretation (p. 440): "A state which overlaps with the utterance situation is non-past. A completed event which overlaps with the utterance situation is past. A stativized event is ongoing and is either progressive or generic according to whether it is viewed as a Stage-level or Individual-level property respectively." RMD expresses these generalizations in terms of interpretation of events and states with respect to zero Tense. But I find it hard to distinguish between an analysis involving a syntactic zero-tense node which the interpretation is hooked up to, and an analysis involving no syntactic tense position at all. If anything, RMD's findings demonstrate that tense is not needed for interpretation of the temporal reference.

There are many other aspects of PAC which merit discussion. Interestingly, RMD shows that her analysis of pseudo-coordination and serial-verb constructions (involving bivalent projections) works identically in headinitial and headfinal languages. In bivalent projections, which involve two heads, one of the heads is superior to the other in heading the bivalent projection; the other one merely heads a predicate adjoined to the main projection line. Either the head to the left or the head to the right can be the overall head, in this sense. Serial-verb constructions may be of either type, but pseudo-coordinations are always headed by the predicate to the right. These generalizations hold, regardless the linear ordering of the X^0 with respect to its complement. This suggests that Kayne (1994) is right in assuming that the head-complement ordering in headfinal languages is a superficial fact: the ordering of the predicates in a bivalent projection is universal, as is in fact the ordering of subject and predicate.

Predicates Across Categories is a study of features and projections in the tradition of Jackendoff (1977), Stowell (1981), and Emonds (1985). It is concerned with the question of the feature composition of the syntactic categories, and with classic questions of phrase structure. Consequently, the book has much the feel of a 1970s/1980s thesis, as issues that are now in the limelight (triggers for movement — Chomsky 1994, restrictions on adjunction — Kayne 1994) are hardly discussed. However, the clarity of the presentation, the level of argumentation, and the authoritative incorporation of research on — regrettably — less familiar languages like Yorùbá and Ìgbo all conspire to lend it a timeless quality.

References

Bowers, J. (1993) The syntax of predication. *Linguistic Inquiry* **24,** 591–656.

Burton, S. & J. Grimshaw (1992). Coordination and VP-internal subjects. *Linguistic Inquiry* **23,** 305–313.

Chomsky, N. (1981). *Lectures on government and binding.* Dordrecht: Foris.

Chomsky, N. (1994). Minimalist program for linguistic theory. In *The view from building 20,* K. Hale and S.J. Keyser (eds.). Cambridge, Mass.: MIT Press.

Emonds, J.E. (1985). *A unified theory of syntactic categories.* Dordrecht: Foris.

Fabb, N. (1984). *Syntactic affixation.* Ph.D. dissertation, Massachusetts Institute of Technology, Cambridge.

Guéron, J. & T. Hoekstra (1988). T-chains and the constituent structure of auxiliaries. In *Constituent structure,* A. Cardinaletti, G. Cinque, and G. Giusti (eds.). Venice: Annali di Ca'Foscari.

Heycock, C. (1991). *Layers of predication: The non-lexical syntax of clauses.* Ph.D. dissertation, University of Pennsylvania.

Hoekstra, T. (1991). Aspect and theta theory. In *Thematic structure,* I. Roca (ed.,). Berlin: Mouton de Gruyter.

Jackendoff, R.S. (1977). *X-Syntax: A study of phrase structure.* Cambridge, Mass.: MIT Press.

Kayne, R.S. (1984). *Connectedness and binary branching.* Dordrecht: Foris.

Kayne, R.S. (1994). *The antisymmetry of syntax.* Cambridge, Mass.: MIT Press.

Marantz, A. (1984). *On the nature of grammatical relations.* Cambridge, Mass.: MIT Press.

McNally, L. (1992). VP coordination and the VP-internal subject hypothesis. *Linguistic Inquiry* **23,** 336–341.

Rothstein, S. (1983). *The syntactic forms of predication.* Ph.D. dissertation, Massachusetts Institute of Technology, Cambridge.

Stowell, T.A. (1983). Subjects across categories. *The Linguistic Review* **2,** 285–312.

Stowell, T.A. (1991). Empty heads in abbreviated english. *GLOW Newsletter* **26,** 56–57.

Williams, E.S. (1980). Predication. *Linguistic Inquiry* **11,** 203–238.