

PHI-FEATURES AND THE MODULAR ARCHITECTURE  
OF LANGUAGE

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# PHI-FEATURES AND THE MODULAR ARCHITECTURE OF LANGUAGE

*by*

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# Preface

This work uses phi-features to explore the character of syntax as a module both autonomous of the systems with which it interfaces, yet sensitive to their requirements. Three results are developed in the perspective of the Minimalist Program:

- A. *Modularity*: Phi-features and operations over them support the modular organization of language. Syntax, realization at PF, and interpretation at LF involve modules distinct in their computational character and information types, and narrowly restricted in their interaction.
- B. *Phi-features*: Phi-features are among the primitives of syntax, realization, and interpretation, and thus a window on the character and interactions of the modules. In syntax, phi-features and operations over them are distinct from those of both PF and LF.
- C. *Globality*: There exists a mechanism to form syntactic dependencies as a last-resort response to licensing requirements. In the terms of the Minimalist Program, it is an interface operation that adds an uninterpretable feature to the numeration if needed for Full Interpretation. Modular architecture imposes narrow limits on its scope.

Chapter 1 introduces the work. It presents the *modular architecture* of cognition, and the organization of the language faculty into the modules of syntax and its interfacing systems of realization (PF) and interpretation (LF). Phi-features are a common alphabet shared by these systems, permitting investigation of their distinctive character and their interaction. Among the phi-features of syntax, some are illegible to its interfacing systems: the *uninterpretable* phi-features of Agree/Case dependencies. The chapter examines the nature of uninterpretable features, agreement, and syntactic versus morphological phi-phenomena. Uninterpretable features are eliminated by forming syntactic dependencies, and underlie the new type of dependency studied in this work: last-resort Agree to repair illegible syntactic structures.

Chapter 2 reviews phi-feature manipulations in realizational morphology, and draws conclusions about the nature of this module. The phenomena include phi-features neutralized in *syncretisms*, deleted or transferred in *opaque cliticization and agreement*, and ineffable in *arbitrary gaps*. They reveal the *modular*

*signature* of morphology: computation distinct from that of syntax in domains and operations, access to nonsyntactic but not to all syntactic information, and strict invisibility to syntax. This signature is the touchstone for differentiating morphological and syntactic phi-phenomena.

Chapter 3 uses the modular signature of syntax to show that some phi-agreement dependencies belong to syntax rather than to realizational morphology. They are interactions between the transitive subject and object according to their person features, or *person (hierarchy) interactions*, in Algonquian, Mapudungun, and Arizona Tewa. The key finding is that the interactions are visible to syntax and interpretation, unlike the morphological phenomena of Chapter 2. Other aspects of their ‘modular signature’ concur, notably operation across phrase-structurally unbounded domains. The person interaction of Arizona Tewa introduces the syntactic *repair* of a *person (hierarchy) constraint*: the emergence of an otherwise unavailable syntactic structure in response to the impossibility of the regular one by a person constraint. Repairs are the focus of Chapters 4 and 5.

Chapter 4 investigates the person interaction of French known as the *Person Case Constraint*, banning a 1st/2nd/reflexive accusative clitic + a dative, and its *repair* by an otherwise unavailable locative for the dative. First is established the robustly syntactic character of the constraint and the repair on all elements of the modular signature of syntax: computational profile, information accessed, and syntactico-semantic visibility. Next are examined their syntactic properties, in preparation for the theoretical treatment in Chapter 5. A principal result is that the repair cannot fix cliticization problems other than the Person Case Constraint, from morphological to interpretive. The irreparability of such ‘ineffable’ structures proves key to understanding the role of modularity in the theory of the repair.

Chapter 5 develops the *last-resort interface mechanism*  $\mathfrak{R}$ , in a cross-linguistic study of the repairs of person constraints through otherwise unavailable ergatives, accusatives, PPs, and enriched DPs. They are unified as the minimal enrichment of a syntactic structure that fails Full Interpretation by an Agree/Case dependency, that is, by an uninterpretable phi-feature (probe).  $\mathfrak{R}$  extends the role of uninterpretable features in forming syntactic dependencies from features that are lexically fixed to those dynamically inserted for Full Interpretation, developing a proposal of Chomsky (1995 et seq.). Modular architecture restricts the scope of  $\mathfrak{R}$  to the interfaces.  $\mathfrak{R}$  can detect illegibility at the interfaces of syntax with PF and LF, but not problems within these modules. In response, it can enrich the numeration interface between syntax and the lexicon with an uninterpretable feature, but not modify syntactic computation, nor search the lexicon for interpretable content.  $\mathfrak{R}$  is extended to other Full Interpretation failures, notably to the ergative and accusative ‘dependent Case’ of all transitives in response to Case licensing.

Chapter 6 explores the syntax-interpretation interface through *phi-mismatches*: nominals like French *on* ‘we’, with one set of phi-features, 1PL, for interpretation, another, 3SG, uninterpretable, for phenomena such as concord.



The uninterpretable phi-features are shown to play a role in syntax, not in realizational morphology alone. Therefore, the syntactic phi-specifications of some arguments and their dependencies are *autonomous* of interpretation, along with expletives, phi-agreement, Case and A-movement. The person of the person interaction in [Chapter 4](#) is among them. The diachronic sources, syntactic properties, and elimination for interpretability of these uninterpretable phi-features are discussed.



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# Conventions and Glosses

Cross-references to sections include chapter number; Section 5.2 is in [Chapter 5](#).

In examples, **bold** is used to draw attention; CAPS for semantic focus; in French examples, italics for clitics and underline for strong pronouns, when relevant.

## Case, person, number, gender/class, and other nominal morphology glosses:

Long format for phi-agreement: 3PLF.ERG for 3rd person plural feminine ergative

Short format for Basque, Chinook, Georgian phi-agreement: 3pfE

Short format for nominal case: N, A, D, E for NOM, ABS/ACC, DAT, ERG

|         |   |
|---------|---|
| ABS, A  | absolutive                                      |
| ACC, A  | accusative                                      |
| ADS     | adessive  |
| ALL     | allative  |
| ALL     | allative  |
| DAT, D  | dative  |
| ERG, E  | ergative  |
| ESS     | essive  |
| GEN     | genitive; the unique genitive clitic of Romance |
| INS     | inessive  |
| INSTR   | instrumental                                    |
| LOC     | locative; the unique locative clitic of Romance |
| OBL     | oblique   |
| 1, 2, 3 | person  |
| INCL    | inclusive                                       |
| EXCL    | exclusive                                       |
| DU, du  | dual  |
| SG, s   | singular  |
| PL, p   | plural  |
| AN      | animate   |
| INAN    | inanimate                                       |
| F, f    | feminine  |

|         |  |
|---------|--|
| M, m    | masculine                              |
| N, n    | neuter                                 |
| CONTR   | contrastive                            |
| DFLT    | default agreement                      |
| EMPH    | emphatic                               |
| EXPL    | expletive                              |
| OBV     | obviative                              |
| PROX    | proximate                              |
| REFL    | reflexive                              |
| SE      | <i>se</i> clitic (Romance and Slavic)  |
| SE(INH) | inherent <i>se</i>                     |
| EA      | transitive subject (external argument) |
| O, OBJ  | transitive object                      |
| S       | intransitive (unaccusative) subject    |
| IO      | indirect and/or applicative object     |
| SU      | subject                                |

### Verbal and clausal morphology glosses

|       |  |
|-------|--|
| AOR   | aorist   |
| AUX   | auxiliary root (Basque)                        |
| CAUS  | causative                                      |
| CJ    | conjunct (Algonquian)                          |
| COND  | conditional                                    |
| DIR   | direct (in person-hierarchy interactions)      |
| FAC   | factive  |
| FUT   | future   |
| IC    | initial change (ablaut in Algonquian conjunct) |
| IMPV  | imperative                                     |
| INF   | infinitive                                     |
| INV   | inverse (in person-hierarchy interactions)     |
| NEG   | negation                                       |
| OBLIG | obligative aspect (Arizona Tewa)               |
| OPT   | optative                                       |
| PASS  | passive  |
| PAST  | past   |
| PERF  | perfect  |
| PROG  | progressive                                    |
| PV    | preverb  |
| RED   | reduplication (Nahuatl)                        |
| REL   | relative                                       |
| RPT   | remote past                                    |
| SRC   | source applicative (Mapudungun)                |



|           |   |
|-----------|---|
| SUBJ      | subjunctive   |
| TA        | transitive animate verb (Algonquian)                |
| TS        | thematic suffix (Georgian)                          |
| V, VN, VO | version, neutral version, object version (Georgian) |
| VNOM      | verbal noun   |