

## Serial Probe Impoverishment

**Aim.** The aim of this talk is to propose a new, uniform analysis for morphological and syntactic reflexes of successive-cyclic movement. This is yielded by a new modelling of the division of labour between syntax and morphology. The basic idea is that impoverishment is a syntactic operation that happens in the context of movement to intermediate phase edges.

**Background.** There is a great number of data that can be taken as evidence for the view that long movement proceeds by successive-cyclic application of local movement steps:

- a. Semantic path effects: long-moved elements are interpreted in intermediate positions (reconstruction effects, elliptic repair, pair-list readings).
- b. Morphological path effects: long movement affects lexical material between extraction site and final position (changing verbal agreement markers, complementiser selection).
- c. Syntactic path effects: long movement affects the syntactic environment between extraction site and final position (head and XP movement), or the moved item is multiply pronounced (copying, partial movement).

There are grammar models in which successive-cyclic movement is enforced by independently motivated properties of the system. These properties follow from the widely assumed view that syntactic computation does not operate on large portions of structure, but that the operation space available is restricted to a small “window” (e.g. Chomsky 2000, 2006, 2008; Epstein & Seely 2002, ultimately going back to Miller 1956), which reduces the overall complexity of the syntactic computation. Within the minimalist program, the reduction of operative complexity is an indispensable property of an optimally designed, efficient computational system (Kawashima & Kitahara 2004). A possible implementation of this idea is the notion of phases as syntactic domains. In a phase-based syntax, “older” parts of the current structure are transferred to the interfaces PF and LF at various points of the computation, so that deeper embedded items cannot be accessed at the current stage of derivation. In this system, elements that are needed later one must be made available at each phase edge. One way of implementing this is by assuming that the movement to the edge is triggered by a structure-building feature (=“edge feature”) which is inserted into a phase head from outside the numeration (=“edge/EPP feature insertion”).

**Claim.** The new proposal is that morphological and syntactic reflexes of successive-cyclic movement are consequences of the featural impoverishment of phase heads which in turn is due to the movement to an intermediate landing site. The basic concept is probe impoverishment, originally proposed in Béjar (2003), which I adopt in a modified version: Movement to intermediate landing sites is triggered by an edge feature. There is, however, no edge feature [ $\bullet X \bullet$ ] as such. Rather, edge features are features that possess the edge property “[ $\bullet \bullet$ ]”, that is, the ability of building structure by merge. What is inserted is thus only the edge property. This property is no independent feature – just like a clitic, it needs a “host” that it docks on to, and it can be fused with any feature F of the current head. The newly created unit [ $\bullet F \bullet$ ] then acts as an edge feature in that it triggers internal merge of an element that is later needed. When the edge property is dealt with, then the entire edge feature, including the “host”, is deleted, so that [F] is not available anymore as a syntactic context at vocabulary insertion (=“probe impoverishment”). Which feature is assigned edge feature status varies cross-linguistically, and from head to head. If edge property insertion happens or not (and thus if a probe is impoverished or not) has an effect on the inflectional markers that are post-syntactically inserted into the probe: The Subset Principle has the effect that it is always the most specific matching marker  $M_1$  that is inserted. If morphosyntactic features are deleted before vocabulary insertion, then  $M_1$  may not fit anymore into the relevant context. In this case a less specific matching marker  $M_2$  is inserted. Morphological and syntactic path effects are thus always a retreat to the general case. This generalisation can be

formulated as follows:

- (2) *Generalisation:* When a language shows different exponents in movement and non-movement contexts, then the marker appearing in the context of movement is less specific than the marker appearing in non-movement contexts (=retreat to the general case, emergence of the unmarked).

**Analysis.** Let me briefly exemplify the new analysis by means of Chamorro “wh-agreement” in the context of subject extraction from transitive realis predicates. In non-extraction contexts, verbal predicates agree with their highest argument in person and number. When a subject is extracted, then the “regular” person-number morphology is overwritten by a “special” agent voice marker. This is illustrated in (3).

- (3) a. Ha-fa’gasi si Juan i kareta (‘Juan washed the car’; (Chung 1998:236))  
3SG-washed UNM Juan DEF car  
b. Hayi f<um>a’gasi i kareta? (‘Who washed the car?’)  
who <UM>wash DEF car

The analysis is based on the idea that there are two competing agreement systems in this language: an Austronesian-style voice marking system, and a person-number marking system. The predicate registers both kinds of agreement, but in most syntactic contexts only one of them surfaces (though they can co-occur, as in intransitive irrealis plural). There is no “wh-agreement” in the sense that a verbal head agrees with passing wh-elements or wh-traces. Rather, the marker alternation is due to probe impoverishment: I is a phase head, and the wh-element must be moved to the edge of I. The edge property is thus inserted and fused with the valued number feature of I (rule: [num] > [●num●] /\_\_ [cat:V -irr arg-arg]). Once the edge feature is satisfied, it is deleted together with its host [num]. The consequence that [num] is not available anymore as a syntactic context at vocabulary insertion. The insertion of the person-number marker /ha-/ ↔ [-1 -2 +sg -irr] is thus blocked, and the less specific marker /-um/ ↔ [+ag] is now the only matching marker. This is a retreat to the general case.

**Consequences.** In this approach, there are no postsyntactic impoverishment rules; rather, impoverishment happens in the syntax as a last resort operation. The decisive advantage of the new approach is that it offers a uniform analysis of morphological and syntactic reflexes of successive-cyclic movement such as wh-agreement in Chamorro, complementiser selection in Irish, tonal downstep in Kikuyu, verb inversion and CP extraposition. The analysis correctly derives the surprising characteristic of long movement in Chamorro that higher verbs do not register the argument status of the passing wh-element, but the respective argument status of the clause from which the wh-element is extracted. A striking property of the new analysis is that it works without restrictions on extraction (“subjects-only”), but yields the same effects. The standard analysis of passivisation with object movement in Austronesian languages (e.g. Keenan & Comrie 1977, 1979; Aldridge 2004; Rackowski & Richards 2005) is that a non-subject can only be extracted if it is promoted to subject. In other words, a construction A (recognisable by the marker M) must be formed before an element  $\alpha$  can be extracted. In the new analysis, on the other hand, any element can be extracted. The extraction of  $\alpha$  automatically makes the outcome of the derivation look like A, as the feature sets of probes along the movement path are manipulated, so that at vocabulary insertion, M, which would normally be blocked by more specific markers, is the only matching marker now. Furthermore, syncretisms in the verbal morphology of Chamorro and Irish can now be treated as occurrences of one and the same underspecified marker, in accordance with the Syncretism Principle (Alexiadou & Müller 2008).

**Selected references.** Béjar, Susana (2003): *Phi-Syntax: A Theory of Agreement*. PhD thesis, Univ. of Toronto. Chung, Sandra (1998): *The Design of Agreement: Evidence from Chamorro*. UCP, Chicago. Rackowski, Andrea and Norvin Richards (2005): Phase Edge and Extraction: A Tagalog Case Study. *Linguistic Inquiry* 36(4), 565–599.