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Adjuncts, The Universal Base, and Word Order Typology

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Adjuncts, The Universal Base, and Word Order Typology

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1. Introduction.¹

Much current work in formal syntax claims that Universal Grammar requires one of the two language types OV and VO to be basic, with the other being derived by movement. This is opposed to a more traditional view in which the parameterization is more direct, in terms of leftward or rightward direction for complements. The idea that all languages share the same base is often known as the Universal Base Hypothesis, and in practice it has been allied with with what I will term the Linear Correspondence Hypothesis, or LCH, embodied most famously in Kayne's 1994 Linear Correspondence Axiom (LCA) (cf. also Barbiers (1995), Fukui and Takano (1998), Cinque (to appear), among many others). The LCA bans right-adjunction and rightward movement, and says (in effect) that if A c-commands B, then A precedes B at PF. This means that apparently right-adjoined or rightward-moved XP's are really left-adjoined, with everything that was originally to the XP's right having moved leftward over XP, by a process I will call Intraposition.² Within the LCH, the difference between VO and OV languages comes down to (i) whether a language has V-movement and/or object-shift, and whether a language has Intrapositions or not. On the alternative view, which I will call the Parameterized Direction Hypothesis, or PDH (as developed in Ernst (to appear-b); cf. also Stowell (1981), Ernst (1991), Saito and Fukui (1998), among many others), either left- or right-adjunction is allowed in principle, the standard view until recently. The relevant typological parameter is that languages may be head-final or head-initial.

¹I owe thanks to Audrey Li for useful comments. All errors or omissions remain my own.

²This movement is often called 'remnant movement' and is akin to Light Predicate Raising (Larson (1988)). I take genuine remnant movement to be a subcase of Intraposition, since the former involves the previous extraction of some XP from the moved phrase, but Intraposition must sometimes occur without this extraction (e.g. to derive the position of postverbal adjuncts like those in 3-4; see below for discussion).

I believe there has sometimes been a misperception of the Universal Base Hypothesis. In fact, on one current assumption that linear order is irrelevant until PF, it is more properly called the “Universal Linearization Hypothesis”, and it really has little to do with the base, in the sense of D-Structure (Chomsky (1981), Chomsky (1986)) or Numeration (Chomsky (1995)). One might reserve “Universal Base Hypothesis” for the claim that all languages share the same **hierarchical** location of heads and complements, thus shifting the focus of inquiry to whether linear order is parameterized in terms of a simpler linearization algorithm and more complex movements, as Kayne and his successors propose, or in terms of a simpler theory of movements with more complex linearization. This difference between the two theories is as shown in 1:

- (1) a. The LCH parameterizes movements; is simpler with respect to linearization.
- b. The PDH parameterizes linearization; is simpler with respect to movement.

The goal of this paper is to show that adjunct distribution facts strongly favor the PDH over the LCH. After discussing the relevant data sets and the two theories in sections 2-3, I lay out three arguments for the PDH over the LCH in section 4, and close with a summary and brief discussion in section 5.

2. Setting the Stage: Two Data Sets.

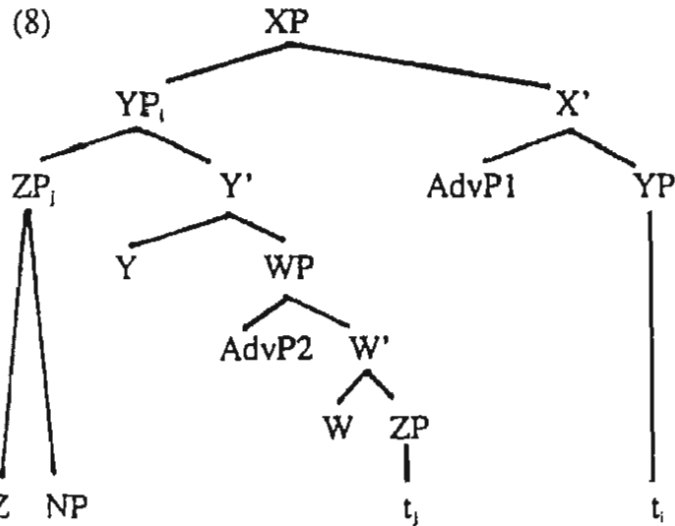
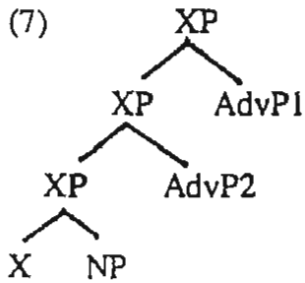
The first set concerns basic patterns for adjuncts in OV and VO languages. Scope and constituency facts show that preverbal adjuncts c-command any preverbal adjuncts to their right (2), that postverbal adjuncts c-command any postverbal adjuncts to their left (3), and that adjuncts may or may not c-command an adjunct on the other side of V (4) (see Ernst (to appear-b) for fuller discussion):

- (2) a. Karen *occasionally* has *reluctantly* bought fur clothing.
- b. Karen *reluctantly* has *occasionally* bought fur clothing.
- (3) a. The minister visited *several times out of courtesy*.
- b. Miranda woke up *slowly yesterday because she had taken a decongestant*.
- (4) a. Julia *didn't* take her medicine *twice again*.
- b. Danielle *frequently* buys a newspaper *because her work demands it*.

In 2a, for example, the event that happens occasionally is Karen reluctantly buying fur, while in 2b it is Karen buying fur; in 2a she is reluctant about buying fur, and in 2b about occasionally buying fur. In 3a-b, each of the italicized adverbials takes scope over those to its left; for example, in 3a it is the multiple visits that show courtesy. Finally, 4a-b show ambiguities, depending on whether the postverbal adjunct(s) take(s) scope over negation or *frequently*. These patterns are usually assumed to be predictable from relative c-command relationships.

Note also that VO languages regularly allow more than one postverbal adjunct, with scope facts as described above (see 3-5), while OV languages usually require adjuncts to be preverbal (6). 7-8 illustrate the two theories' different treatment of two postverbal adjuncts:

- (5) a. Elle a préparé des plats pareils fréquemment l'année dernière.
 she has prepared some dishes similar frequently the year last
 'She prepared such dishes frequently last year.' (French)
- b. Mi wnaeth o yfed cwrw am awr ar bwrpas.
 art did drink beer for hour on purpose
 'He drank beer for an hour on purpose.' (Welsh)
- (6) a. (Kanojo-wa) tokidoki 'mizukara lunch-o nuita (*tokidoki/*mizukara).
 she-TOP occasionally willingly lunch-ACC skip.PAST
 'She has occasionally willingly given up her lunch hour.' (Japanese)
- b. Raam-ne zaruur vah kitaab dhyaan se paRhii thii (*zaruur/*dhyaan se).
 Ram_{ERG} certainly that book care with read_{PERF-3sm} be_{PST-3sm}
 'Ram certainly read that book carefully.' (Hindi)



7 shows a PDH analysis, assuming the possibility of multiple right adjunction to one projection. 8 illustrates how an LCH analysis (Cinque (to appear)), which forbids right adjunction, predicts both linear order and the correct scope relationships, with the successive Intrapositions of ZP and YP (assuming that scope is determined by the pre-movement structure, either by encoding it before movement or by some sort of reconstruction).³

The second data set involves the distinctions among three types of adjuncts, in terms

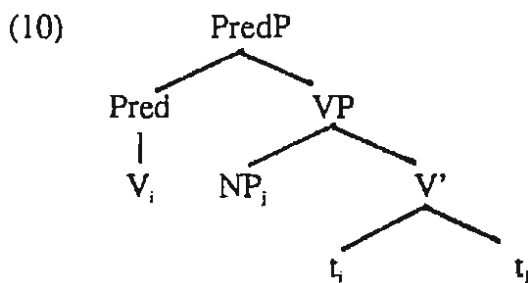
³I will ignore a strictly 'Larsonian' structure, by which any postverbal adverbial is lower than any other one to its left, in an elaborated VP-shell (base and surface) structure. This sort of analysis faces significant problems in accounting for scope (requiring rather stipulative covert movements) and for phrase structure theory (see Ernst (to appear-b) for full discussion).

of linearization. First, there are Predicational adverbs, such as *clearly*, *probably*, *surprisingly*, *cleverly*, *willingly*, *similarly*, *loudly*, and *honestly*. Adverbs of this class correspond semantically to content-class adjectival predicates taking Events, Propositions or Facts as semantic arguments (see Ernst (to appear-a)); for example, *probably* in 9a comments on the likelihood of the truth of the proposition [Albert has eaten a sandwich]:

- (9) a. Albert has (probably) eaten a sandwich (*probably).
 b. Barbara (luckily) won't be penalized for burping (*luckily).
 c. Carol will (cleverly) lie in wait (*cleverly). (non-manner reading)
 d. Dave has been (loudly) proclaiming his innocence (loudly).

Predicational adverbs in VP are postverbal, where they have manner readings, while all others are preverbal, including immediately preverbal instances with manner readings, such as *loudly* in 9d (all sentences in 9 must be read without comma intonation).

I assume, along with Johnson (1991) and Bowers (1993), that there is a functional projection immediately above VP (including any 'shells'), PredP in 10, and that V moves into its head; the object NP moves to Spec,VP for Case (subjects are generated in Spec,PredP).⁴ The principles above predict that manner adverbs may adjoin to the right in VP, or to the left in PredP, accounting for the dual ordering possibility in 9d.



The second type of adjunct for the purposes of gross ordering patterns is Functional adjuncts. This class is made up of a variety of (usually closed-class) quantificational, aspectual, discourse-related, focusing, and other operator(-like) adjuncts, such as *often*, *still*, *again*, *almost*, *twice*, *just*, *only*, *even*, *scarcely*, and *never*. They may occur adjoined either to the left or the right above VP, or (for those which may take narrow scope) to the right in VP (see 11). Some are lexically restricted to preverbal positions (as in 12):

⁴Many different labels have been proposed for this head, with slightly different properties, including AgrOP, vP (Chomsky (1995)), TrP (Collins (1997)), and VoiceP (Kratzer (1994), among others). The arguments presented here are not affected by the choice. Note that the fact that V and its object are obligatorily adjacent is evidence for banning left-adjunction in VP; the directionality principles proposed above predict this directly. Johnson, Bowers, Chomsky (1995) and others must make ad hoc stipulations (e.g. "adverbs only adjoin to the X' level") to get the same effect. See Ernst (1998) for discussion and several other arguments against left-adjunction to VP in VO languages.)

- (11) a. Fred (often) goes there (often).
 b. They haven't (yet) managed to convince us (yet).
 c. A wombat has (again) been chewing on the cable (again).
- (12) a. She could (not) have (**not**) been paying attention (*not).
 b. They had (scarcely) arrived (*scarcely) when all the china fell off the shelf.
 c. Egbert (just) refuses to get involved (*just).

The third type is semantically mixed, being composed of Participant PP's and heavy Functional adjuncts. The former, including instrumentals, benefactives, comitatives, and some locatives, designate optionally-mentioned participants in an event, and sometimes function as arguments with certain verbs (examples include *with a hammer*, *to the store*, *on the beach*, *for your uncle*, *from Paris*). Heavy functional adjuncts include PP's and CP's whose head is scope-taking and semantically Functional, such as *because of her*, *if they decide to go*, and *unless it explodes*. Ignoring clause-initial position (to which all but the 'lightest' adjuncts may be moved in any case), participant/ heavy functional adjuncts are obligatorily postverbal in head-initial languages, as 13 illustrates:

- (13) a. Louise (*with a hammer) cracked the piggy bank (with a hammer).
 b. The project (*if we get funding) will hire more assistants (if we get funding).

3. How the Two Hypotheses Handle the Data.

The first important fact illustrated above is that OV languages generally require all adjuncts to be preverbal, while VO languages have adjuncts to the right of V in VP, but to either side of V in functional projections. On the PDH, this may be handled according to the principles proposed in Ernst (to appear-b), in 14:⁵

- (14) Basic Directionality Principles:
 a. Functional-Direction (F-dir) is universally Leftward (L).
 b. Complement-Direction (C-dir) is parameterized: {L, R}
 c. Adjuncts: (i) Adjoined according to C-dir in VP
 (ii) Adjoined according to either F-dir or C-dir in functional projections
 (according to lexical and prosodic specifications)

I will assume that all licensing by a functional feature [+F] follows F-Dir, and that all items so licensed are by definition in Spec. This derives the universal leftward position of Spec.⁶

⁵I take these principles apply after Spell-Out, before traces are erased, to both traces and overt elements. As a result they have the effect of constraining base positions, and predict that for a given language the sets of potential base positions and landing sites are identical (although other principles may further restrict one or the other set, e.g. complement positions are not landing sites).

⁶For discussion, see Ernst (1991), Hoekstra (1991), Saito and Fukui (1998), and references there.

15 provides linearization algorithms which are more technical versions of 14(a) and 14(c) (leaving the directionality parameter in 14(b) and 15 as the actual theoretical mechanisms):

(15) Linearization at PF

a. Place nonheads to the left of heads except those marked [+R], placed to the right.

b. If C-dir = R, (i) assign [+R] to all elements in VP;

(ii) adjuncts in functional projections are assigned [+R] thus:

Predicational adverbs: [-R]

Functional adjuncts: [±R]

Participant/heavy functional adjuncts: [+R]

15b only applies in head-initial languages, so that 15a alone accounts for the uniform head-final nature of OV languages.⁷ For VO languages, assuming [+F] and [+R] to be incompatible, 15b(i) will not apply to items in Spec (thus ensuring the leftward placement of Spec) and puts complements and adjuncts in VP to the right of V. 15b(ii) places other adjuncts according to the three groups discussed above. In this way the PDH accounts for the basic typological facts by means of one directionality parameter for Complement Direction, plus the principles in 15.

How does the LCH deal with the same data? For Kayne (1994), Alexiadou (1997), and Cinque (to appear), there is no adjunction apart from Spec (with only one Spec per head), all adverbials are generated in Spec positions, licensed by a specific head, and postverbal adjuncts result either from (i) verb-raising, or (ii) Intraposition, i.e. raising the complement of the adjunct's licensing head to a Spec position above the adjunct. 17 shows a sample derivation for a sentence with two postverbal adverbs, with two Intrapositions having applied (to WP and ZP). I assume, in accordance with the usual practice in the LCH, that some feature (here, [+Intrap]) on a head triggers the movement, and that some related feature ([+Intrapos]) identifies the moved constituent (pre-sumably, a strong feature which must be checked by [+Intrap] in order to be erased by Spell-Out).

The main difference in adjunct placement for OV versus VO languages must be handled by a parameter for whether (or when) Intraposition applies: it applies (or is overt) only for VO. Thus, corresponding to (the adjunct part of) 14-15, the LCH in effect has 16:

(16) Adjunct Linearization on the LCH:

a. Only VO languages allow Intrapositions;

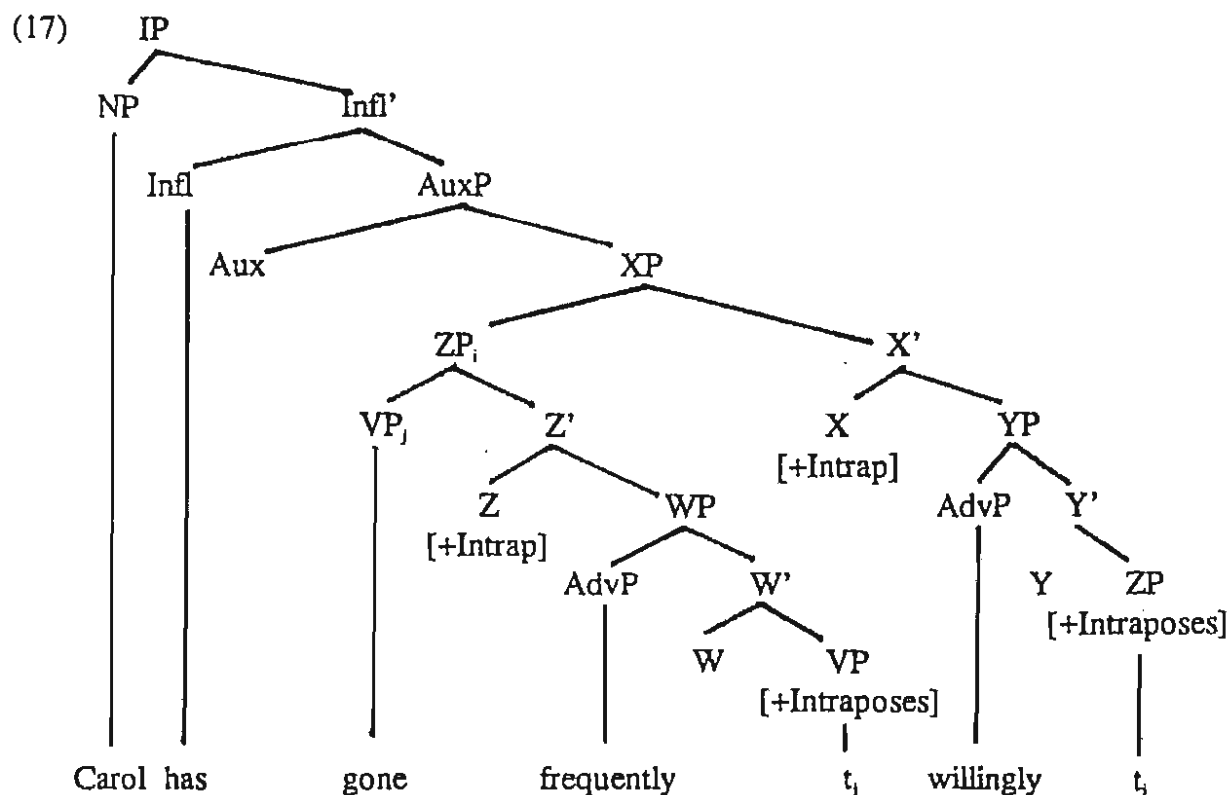
b. A head X bears the indicated value for [Intrap] if X selects a head Y licensing a...

Predicational adverb: [-Intrap]

Functional adjunct: [±Intrap]

Participant/heavy functional adjunct: [+Intrap]

⁷I leave aside postverbal phrases in Germanic SOV languages; see Ernst (to appear-b) for discussion.



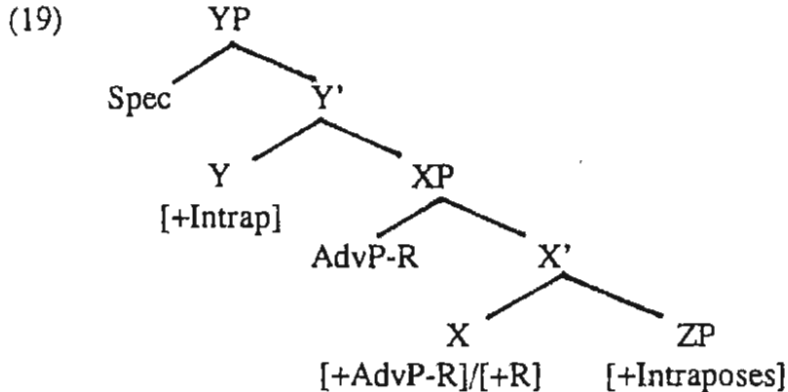
4. Arguments for the PDH.

The first argument for the PDH is that it preserves simpler and more restrictive theories of movement and selection than the LCH does. Looking first at movement, there is no plausible motivation for Intraposition, as many people have pointed out (e.g. Rochemont and Culicover (1997), Svenonius (1998)). It has no morphological or semantic correlate, as is required by a restrictive theory of movement. Intraposition's functions are (i) to derive the normal, canonical (often obligatory) surface postverbal order of many adjuncts, and (ii) to ensure that the surface position of heavy constituents is postverbal. For such cases of apparent rightward movement, such as Heavy NP Shift, the LCH assumes a two-stage derivation: first, the constituent that ends up on the right is moved to a higher Spec (call this 'XP-Shift'), and then the phrase below that Spec Intraposes in turn to a yet higher position (see Kayne (1994), Rochemont and Culicover (1997), Ernst (to appear-b) for discussion). Crucially, in the latter case, Intraposes only the 'remnant' left by XP-Shift, so that there is no prosodic or focus-related motivation for Intraposition itself. On the PDH there is no question of motivation (i) because there is no movement corresponding to Intraposition, and for (ii) with one-step rightward movement, there is the motivation of a prosodic requirement/preference for heavy items to be to the right.

Now consider how Intraposition affects the theory of selection on the LCH. For Heavy NP Shift and other cases of apparent rightward movement, Intraposition must accompany XP-Shift; otherwise, for example, English would have sentences like 18:

- (18) a. Bob said last weekend that he would stop playing his accordion.
 b. *Bob that he would stop playing his accordion said last weekend.

For postverbal adverbials, Intraposition must apply whenever such an adverbial is present. The required features for these two cases are schematized in 19, where [+R] is the trigger for XP-Shift, [+AdvP-R] licenses AdvP-R in Spec,XP and XP-Shift moves phrases into Spec,XP:



For this analysis to work, the LCH requires several selectional mechanisms. First, a head bearing [+Intrap] obligatorily selects for an X bearing either [+AdvP-R] or [+R], which licenses (respectively) an obligatorily postverbal adjunct, and [+R]-movement. Second, a head bearing [+AdvP-R] or [+R] selects [+Intrapos] on its complement, which must be checked in a [+Intrap] Spec (or some equivalent of this mechanism to ensure that this constituent does not remain in situ). But these are all stipulations, with no obvious motivation. To my knowledge, there is no independent evidence for X and Y in 19; they exist only to provide a trigger feature, a Spec position for movement's landing site, and, via the stipulated selectional requirements of [+AdvP-R] and [+R], to ensure that the correct phrase extraposes. Nor is there independent evidence for a feature like [+Intrapos] which does nothing but require that its bearer move from its base position.

In effect, the analysis represented by 19 subverts the locality of selection by implicitly allowing a chain of obligatory selections stretching across three functional projections. This is not a case like a lexical Comp selecting a particular Infl, which in turn selects V (or the equivalent set of heads in a more articulated system), where selection is limited and rooted in a genuine lexical item. Instead, the selection needed for 19 can occur on any set of nodes, since adjuncts may occur to the right of V, in principle, at any hierarchical point (thus requiring possible Intraposition at any hierarchical point). Surely, it would be better for syntactic theory to keep selection local, especially where such general features are implicated.

By contrast, the PDH requires one [+R] feature corresponding to [+AdvP-R], as noted above, and a movement trigger equivalent to [+Intrap]. It requires no other licensing, selection, or empty heads (X, Y in 19) with stipulated selectional properties. It preserves the locality of selection. In these ways the PDH is simpler than the LCH with respect to movement and selection, and it requires no unmotivated mechanisms, unlike the LCH.

I turn now to the second argument for the PDH: it makes a more direct and plausible link between the surface directions of complements and adjuncts in VP than the LCH does: the PDH in 14-15 claims inherently that these two phenomena covary, while on the LCH this must be stipulated. On the LCH the difference between VO and OV languages is a matter of different combinations of V-raising and object-shift. For example, on a Kaynean analysis where SVO order is basic, SOV order is derived by shifting objects leftward. The position of adjuncts in VP (and non-predicational adjuncts above VP) must be determined by whether Intraposition applies or not: in VO languages it does, while in OV languages it does not. 20 shows the specifications needed to account for the positions of complements and adjuncts:

(20) LCH theory with Intrapositions:

TYPE	SPECIFICATIONS		RESULTS	
	<u>Obj Shift</u>	<u>Intraposition</u>	<u>Complements</u>	<u>Adjuncts⁸</u>
SVO	No	Yes	R	R
SOV	Yes	No	L	L

In 20, there is no obvious connection between the possibility of object shift and that of Intraposition, nor any apparent reason why the specifications for Object Shift and Intraposition must be opposite. Note that the link cannot be made at any specific node, since [+Intrap] occurs all up and down the clausal structure (at any point corresponding to any postverbal adjunct or site of putatively postposed constituent), while object shift is to one or a very small number of landing sites. This is especially important in a theory claiming (as versions of the LCH usually do) that all parametric variation is to be found in the feature specifications of functional heads: the necessary connection in 20 not only must be stipulated, but it cannot be stipulated easily in such terms.

These same remarks hold, in a slightly different form, for a theory in which SOV is basic and the OV/VO difference follows from a difference in the height of V-raising (e.g. Fukui and Takano (1998)). In such theories, starting from a basic SOV order, SVO order is derived by moving V to a relatively high landing site (above whatever the canonical surface position of objects is), while SOV order results from raising of objects and a relatively low final landing site for V (if it is moved at all), below all objects. Again, on such analyses, the possibility of Intrapositions in a given language must somehow be linked to the landing site of objects or V, and the same objections hold as for 20.⁹

In contrast to these two LCH versions, on the PDH the direct use of directionality in

⁸In both 20 and 21, the result given for adjuncts is for the only relevant cases, i.e. adjunct classes which are postverbal in VO languages. Both systems predict correctly that all language types allow preverbal adjuncts.

⁹It is not possible to simply say that VO languages have postverbal adjuncts because both V and objects raise past adjuncts which remain in their base positions, which are preverbal in an SOV structure before movements occur. This is because the derived structure makes the wrong scope (and constituency) predictions for the data in section 2. See Ernst (to appear-b) for more extensive discussion.

14-15 allows linking complement and adjunct positions, since they can both be made sensitive to (the parameterized value for) Complement-direction. This is represented in 21:

(21) PDH theory with directionality parameters:

TYPE	SPECIFICATION	RESULTS	
	<u>C-Direction</u>	<u>Complements</u>	<u>Adjuncts</u>
SVO	R	R	R
SOV	L	L	L

Here, the correlation between the distribution of complements and that of adjuncts is natural, automatic, and restrictive. Thus, the PDH makes the correlation between the positions of complements and adjuncts in VP in a direct and restrictive way, while the LCH does not.

Finally, consider a third argument for the PDH: it can more easily capture the clustering of 'R-Movement' properties than the LCH (some of the following is discussed in Fukui and Takano (1998); see also Rochemont and Culicover (1997) and Müller (1997) for relevant discussion). Observe first the well-known cases of Heavy-Shift in 22, and of Extraposition in 23 (see Rochemont and Culicover (1990), Rochemont (1992), Rochemont and Culicover (1997) for extensive discussion):

- (22) a. I thought over t_i carefully yesterday [everything the committee had discussed],
 b. George treated him t_i that day [like someone who would solve all his problems],
- (23) a. [A woman t_i] came into the room [that we all had seen before],
 b. Karen was talking to [a student t_i] yesterday [who had come over from Tasmania],
 c. [So many flowers t_i] had been ordered [that the room felt like a greenhouse],
 d. Juan invited [more people t_i] to the reception [than we had expected],

It is not clear that all of these involve genuine movement, but since the discussion here will center on properties relevant to surface order, the distinction will not matter. (I refer to these cases as 'R-Movement', designating such apparent displacements whether base-generated or derived by movement in either direction.) I will phrase my arguments for the PDH in terms of movement, but what is crucial is that they favor an analysis in terms of directionality over one with hierarchically different (leftward) landing sites as required by the LCH.

R-Movement in SVO (and some SOV) languages has different properties than leftward (A'-) movement, typically represented by WH-movement/Topicalization, as in 24:

(24) Phenomenon	<u>Leftward Movement</u>	<u>Rightward movement</u>
(a) direction	leftward	rightward
(b) multiple movement	highly restricted	possible
(c) bounding	not clause-bounded	clause-bounded ¹⁰
(d) category of moved XP	no restrictions	restrictions possible

24a, direction, is an obvious difference. Of course, in approaches where rightward movement is banned, all apparent such cases must be instances of leftward movement. Thus for the LCH, the equivalent of the difference in direction in 30a is that between a simple leftward movement of some XP, versus a double movement of XP-shift plus Intraposition of the remnant. This combination gives the appearance of rightward movement of the shifted XP. Turning to 24b, we see that the classical cases of leftward movement rarely cooccur and are restricted when they do; see 25a, where both WH-movement and topicalization have applied:

- (25) a. ?*What do you think that, into the box, Karen put carefully yesterday?
 b. Karen put t_i t_j carefully [on the floor], yesterday [all the iguanas she had caught].

Compare this to 25b. If there is genuine rightward movement, there are two of them, as shown by the bracketed constituents and their traces. On the LCH there are at least three movements, two to get the effect of Heavy NP Shift (XP-Shift and Intraposition), and one to get *yesterday* out to the right of *put carefully on the floor* (Intrapositing this sequence to the left of *yesterday*). In either case, multiple movements are permitted.

24c states a distinction in bounding behavior: leftward movements like WH-movement and Topicalization are potentially long-distance movements, while rightward movements are strictly clause-bound. This is illustrated in 26:

- (26) a. Where_i did Karen say [that she put the iguana t_i]?
 b. *Karen said [that she put it carefully t_i] loudly [into the box]_i,
 (cf.: c. ?Karen said [that she put it carefully into the box] loudly.)

26a shows a standard case of long-distance WH-movement, while 26b illustrates an attempt to move a PP rightward out of its bracketed clause, the result of which is ungrammatical.

It is not easy to give good English examples of categorial restrictions referred to in 24d, but the sentences from German in 27-28 illustrate the phenomenon for extraposition (from Haider (1997), 125-126). 27a-b show that extraposition of CP and PP are possible, while (b), (d), and (f) in 28 illustrate the impossibility of extraposing AP, NP, or VP:

- (27) a. Er hat [die ganze Nacht t_i] geschlafen, [die er im Verlies zubrachte]_i. (CP)

¹⁰R-Movement is in fact even more locally bounded than by clauses; perhaps the relevant domains are extended projections, in the general sense proposed in Grimshaw (1991). See Rochemont and Culicover (1990), Rochemont (1992), and Ernst (to appear-b) for discussion.

- he has the whole night slept which he in dungeon spent
 'He slept the whole night that he spent in the dungeon.'
- b. Er hat [häufiger t_j] protestiert, [als ich zugestimmt habe], (PP)
 he has more-frequently protested than I agreed have
 'He has protested more frequently than I have agreed to.'
- (28) a. [Stolz auf sie] ist er gewesen. (AP)
 proud of her has he been b. *Er ist gewesen [stolz auf sie].
 c. [Eine NP] wurde hier geworden. (NP)
 an NP was here moved d. *Hier wurde verschoben [eine NP].
 e. [Nach Rom gefahren] ist er nicht. (VP)
 to Rome travelled has he not f. *...daß er nicht ist [nach Rom gefahren].

Consider how the two theories can predict that R-movement has the properties in the right-hand column of 24 while leftward movement has those on the left. On the PDH, we may say that [+R] is optionally assigned to a sufficiently heavy constituent, and rightward movement, applying only to [+R] constituents, is triggered by the need to satisfy requirements on the prosodic patterns of the sentence (cf. Zubizarreta (1998)).¹¹ Since [+R] is primarily a PF feature, it is natural for it to be conditioned by heaviness, and it need not be related to any semantic/pragmatic effects (although it can, when focus is part of what determines 'heaviness'). Recall that above [+R] and [+F] were assumed to be incompatible; the latter (at least when triggering A'-movement) is necessarily associated with some semantic/pragmatic effect, such as interrogation, focus, contrast, or the like.

[+R] being the prosodically-related trigger for rightward movement allows linking the effects shown in 24a-d. Aside from the rightward landing site determined by the principles in 15, multiple movement is possible because the restrictions imposed on leftward movement result either from clashes of semantic requirements (such as when there are two foci in one sentence) or some version of minimality requirements applying only to movements to Spec positions (e.g. Relativized Minimality (Rizzi (1990)), the Minimal Link Condition (Chomsky (1995))); neither applies to rightward movement. Clause bounding results if we assume that strict boundedness is the unmarked case for movement, with long-distance movement only possible through Spec positions, the classic Chomskyan position.¹² Finally, the fact that only R-movement is subject to categorial restrictions follows from the role of syntactic category in determining the 'heaviness' of a given phrase; typically, if R-movement is allowed only for some categories in a given case, it is the 'heavier' ones which move (i.e. the ones which are usually longer in morphological terms, such as CP and PP, as opposed to NP, AP, or AdvP;

¹¹See Ernst (to appear-b) and references there for discussion of the various factors, such as stress, focus interpretation, morphological length, and syntactic category, that determine the 'weight' of phrases.

¹²We may take A'-movements to Spec and thence to higher adjoined positions as instances of 'improper movement' through incompatible position types, so that the clause-boundedness of rightward movement cannot be avoided by going through Spec,CP (see Müller and Sternefeld (1993), Müller (1997) for discussion).

see 28). By contrast, the properties of leftward movement follow mostly from the leftwardness and LF-relatedness of [+F]: frequent problems for multiple movements, the possibility of long-distance movement, and the lack of categorial restrictions.

Now compare the LCH's approach to these properties. Recall that [+R] triggers XP-Shift, the equivalent of rightward movement on the PDH. If movements like WH-movement and Topicalization are triggered by a different feature [+F], and [+R] differs from the latter in the same ways as discussed just above, then the same multiple movement/categorial restriction correlation will follow. But problems remain for directionality and bounding.

First, there is no natural way on the LCH to connect R-movement to the other three properties. This is because in effect [+R] acts only to separate the apparently moved phrase from its projection (by triggering XP-Shift); it is Intraposition that is responsible for getting the XP out to the right, in what amounts, for all practical purposes, to a 'flipping' operation of changing relative order. The association of surface rightward direction with bounding, multiple movement, and categorial restrictions is made only because the LCH stipulates the obligatory application of Intraposition whenever XP-Shift applies, as noted above. Second, although the bounding properties discussed above are not problematic, the status of A'-moved elements as further islands for movement is. As is well known, movements like Heavy Shift generally forbid leftward extraction from the moved phrase:

- (29) a. What_i did they tell [the story of t_i] that day?
 b. *What_i did they tell that day [the story of t_i]?

As Intraposition clearly cooccurs with XP-Shift, is clause-bound, and is categorially restricted, and (more conceptually) functions primarily to change linear order, it should line up with PF-related XP-Shift in terms of its properties. But as Rochemont and Culicover (1997) point out, an Intraposed XP does not form an island for further movement. Compare 30b to 29b:

- (30) a. They put [the iguana into the box]_i, carefully t_i.
 b. What_i did they put [t_i into the box]_i, carefully t_i?

In sum, the PDH accounts neatly for the linked properties in 24a-d by making them all dependent on [+R] in some way, with the PF-relatedness of [+R] (and LF-relatedness of the incompatible feature [+F]) responsible for the differences. On the other hand, the LCH essentially has to stipulate the rightward surface positions of R-movement by associating XP-Shift with Intraposition, and in doing so it is forced to allow the latter rule not to conform completely to its apparent (R-) movement type, as 29-30 show. Thus the PDH is less stipulative and more conceptually motivated than the LCH with respect to R-movement.

5. Summary and Conclusion.

In accounting for postverbal adjuncts in VO languages, the PDH accounts for the data in a simpler and more restrictive way than the LCH. First, the latter requires Intraposition to

derive postverbal positions for an adjunct. The trigger for Intraposition lacks a proper semantic or morphological motivation as required by the theory; and Intraposition requires empty heads (with stipulated selectional requirements) having no independent motivation. The PDH avoids all this, and so is simpler and less stipulative. Second, the PDH makes a motivated link between the canonical positions of complements and adjuncts in VP, while on the LCH this link is stipulative, if not counterintuitive. Third, R-movement shows a cluster of properties opposed to leftward movement; the PDH predicts these properties by means of the PF-related feature [+R]. The LCH can do this partially, but, since it lacks a left-right distinction and requires an extra movement (Intraposition), it must link surface position to other properties in an ad hoc way, and ends up positing somewhat anomalous properties for Intraposition.

Taken in their entirety, these arguments show where the difficulty for the LCH is: in each case the problem is caused by Intraposition. This putative movement has no proper motivation, requires numerous stipulations and unrestrictive mechanisms in order to work, does not conform to movement typology, and cannot easily be correlated with object shift. Tellingly, Intraposition acts essentially only to switch the linear order of a phrase generated in or moved to a position to the left of a head, when this phrase must be to the right of that head in surface order. Its entire function is thus to make up for the fact that the LCH cannot refer to directionality, and its many problems show that it is a clumsy, and ultimately dubious, way to predict the postverbal position of adjuncts and heavy phrases.

If this is correct, the implication is that right-adjunction and rightward movement are allowed, which in turn means that the Kaynean "antisymmetric" view cannot be completely correct -- in fact, it seems to be on the wrong track at least as far as adverbial adjuncts are concerned.¹³ A theory allowing right-adjunction of adjuncts, and rightward movement of heavy phrases, seems to give a better account of word order across languages.

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¹³With respect to rightward movement, this result is at least partly in line with Chomsky's (1995:325, 333) suggestion that it in fact does not fall under principles of grammar like licensing in Spec, bounding conditions, etc., as do leftward movements. But the data show that it does conform to enough important principles to be taken as part of core grammar, and therefore that core grammar has no absolute restriction on the direction of movement.

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