Light and heavy reflexives[1]

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Abstract

Haiman (1983) has argued that the phonological weight of reflexives within many languages is determined by the type of verb that they are coupled with. Specifically, he has claimed that reflexives which occur with ''introverted'' verbs denoting ''actions which one generally performs upon one's self'' tend to be phonologically lighter than reflexives which occur with ''extroverted'' verbs denoting ''actions which the subject usually performs towards others.'' Contra Haiman, Kemmer (1993) has argued that light and heavy reflexive marking is determined by the degree to which the participants in the action denoted by a sentence are distinguishable. The current article defends Haiman against Kemmer's critique but also advances many other criticisms of Haiman's analysis. Thus, it is argued contra Haiman that introversion and extroversion can be properties not only of the actions denoted by verbs but of the actions denoted by sentences also. Furthermore, it is shown contra Haiman that notions of introversion and extroversion can differ across languages. Finally, it is demonstrated that although the distinction between introversion and extroversion can account for more instances of the contrast between light and heavy reflexive marking than envisioned by Haiman, it still fails to explain every such instance. Problems with other theories which draw upon the distinction between introversion and extroversion to motivate the contrast between light and heavy reflexive marking such as Reinhart and Reuland (1993) are also highlighted. Finally, it is shown that theories of reflexivization which do not appeal to the distinction between introversion and extroversion such as Chomsky (1986) or Pollard and Sag (1992) are unable to predict observed patterns of light and heavy reflexive marking. It is concluded that no satisfactory account of the contrast between light and heavy reflexive marking currently exists and that further data pertaining to issues such as diachronic evolution and cross-linguistic variation is required if such an account is to emerge.

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1. Introduction

In his seminal article "Iconic and economic motivation," John Haiman (1983) observed that in a wide variety of languages verbs influence the phonological form that reflexives take. Specifically, he showed that for many languages a reflexive will take a phonologically heavy form in combination with a particular set of verbs and a phonologically light form in combination with a different set of verbs. Consider, for instance, the following English, Hua, Turkish, and Russian examples (taken from Haiman 1983: 803–805), which feature either phonologically light reflexives (as in sentences [1a], [2a], [3a], and [4a]) or phonologically heavy reflexives (as in [1b], [2b], [3b], and [4b]):

(1) a. Max washed.
    b. Max kicked himself.
(2) a. Zoe.
       'I washed.'
    b. D-goe.
       me-I saw
       'I saw myself.'
(3) a. Yika-n-di-∅
       wash-self-PAST-3sg
       'He washed.'
    b. Kendi-ni seviyor
       self-his he loves
       'He loves himself.'
(4) a. Ja kazdyj den' moju + sj.
       I every day wash + (my)self
       'I wash everyday.'
    b. Viktor nenavidit sebja.
       'Victor hates himself.'

As Haiman's examples show, the terms "light" and "heavy" do not denote a fixed phonological weight which is constant across languages (clearly, the null-form light reflexives in English and Hua are phonologically lighter than the verbal affix light reflexives in Turkish and Russian) but simply that such languages employ a pair of reflexives with contrasting phonological weights. Haiman (1983: 803) explained this contrast in phonological weight by arguing that the phonologically light reflexive forms tend to combine with "introverted" verbs denoting "actions which one generally performs upon one's self" (as in examples [1a], [2a], [3a], and [4a]) while phonologically heavy reflexive forms tend to combine with "extroverted" verbs denoting "actions which the subject usually performs

towards others'' (as in examples [1b], [2b], [3b], and [4b]). For Haiman, this phenomenon has an economic motivation. Specifically, it accords with Zipf's (1935) ''principle of least effort'' whereby ''the phonological bulk of an expression varies inversely with its familiarity or predictability'' (Haiman 1983: 802). Thus, Haiman argues that Zipf's principle correctly predicts that in the above examples the reflexive marking of the introverted verb will be phonologically lighter than that of the extroverted verb because the introverted verb typically occurs with such marking whereas the extroverted verb does not.

In the years since Haiman's study of the differing effects that introverted and extroverted verbs have on the marking of reflexives a number of challenges for his analysis of the phenomenon have emerged. Most obviously, there have been direct critiques of his analysis such as that by Kemmer (1993) which have argued that the phonological form of reflexives is determined not by the contrast between introverted and extroverted verbs but by other factors altogether. Compounding this, studies such as that by Pollard and Sag (1992) continue to emerge which, while not directly attacking Haiman's analysis, claim to be able to offer comprehensive accounts of reflexivization without making any reference to the contrast between introverted and extroverted verbs. Also, however, a number of rival theories have been developed such as that by Reinhart and Reuland (1993) which offer radically different accounts of how introverted and extroverted verbs determine the contrast between phonologically light and heavy reflexive forms. Finally, studies such as that by König and Siemund (2000) have mined new sources of data regarding the contrast between phonologically light and heavy reflexive forms and yielded data which is problematic for Haiman's account.

The following article takes a fresh look at the contrast between light and heavy reflexive forms and the various accounts which purport to explain them. In particular, the article provides a critical assessment of Haiman's analysis of light and heavy reflexive marking and those of his rivals. Thus, it defends Haiman's analysis against Kemmer's (1993) critique by showing that while the distinction between introverted and extroverted verbs does serve to explain the data that Haiman applies it to, Kemmer's criterion of participant distinguishability does not. The article also reinforces Haiman's analysis, however, by showing that it can explain aspects of the data regarding the contrast between light and heavy reflexives that theories of reflexivization which do not take the distinction between introverted and extroverted verbs into account — such as Pollard and Sag's (1992) ''O-binding'' theory — cannot. Far from promoting an uncritical acceptance of Haiman's analysis, however, the article highlights a number of fundamental problems with his account. In particular,

the article demonstrates that while the distinction between introverted and extroverted verbs explains many more instances of the contrast between light and heavy reflexive forms than originally envisioned by Haiman, there are still many such instances which it cannot explain. Also, however, it highlights numerous theoretical shortcomings with Haiman's analysis such as the fact that introversion and extroversion are properties not just of the actions denoted by verbs but of the actions denoted by clauses also. Yet while the article is critical of Haiman's analysis, it is no less critical of rival theories such as that of Reinhart and Reuland (1993) which also appeal to the distinction between introverted and extroverted verbs in order to explain the contrast between light and heavy reflexive forms. Specifically, it demonstrates that such theories are as empirically and theoretically problematic as Haiman's. In short, the article argues that while it is valid to explain the contrast between light and heavy reflexive forms by appealing to notions of introversion and extroversion (contra theories of reflexive marking such as those developed by Kemmer [1993] or Pollard and Sag [1992]), the accounts of this type which are currently available (such as that by Haiman [1983] or Reinhart and Reuland [1993]) are problematic on both an empirical and theoretical level. The article concludes with some suggestions as to how a satisfactory account of light and heavy reflexive marking might be developed.

2. Light and heavy reflexives as objects of verbs

In Haiman's (1983) original study of light and heavy reflexives, it was shown that in a wide variety of languages both light and heavy reflexive forms are used to denote that the object of a verb is coreferenced with the subject. Subsequent typological studies have reinforced Haiman's view that the contrast between the light and heavy reflexive marking of objects can be commonly observed throughout all of the major language families (cf. in particular Geniusiene 1987; Haiman 1983; Huang 2000; Kemmer 1993), although Kemmer (1993) has estimated that the majority of the world's languages do not employ both light and heavy reflexive forms as objects of verbs.[2] For Haiman (1983: 803), languages which employ both light and heavy reflexives as objects of verbs do so to express a distinction between "introverted verbs," which denote "actions which one generally performs upon one's self," and "extroverted verbs," which denote "actions which the subject usually performs towards others." Specifically, Haiman argues that sentences featuring introverted verbs are marked with phonologically light reflexives while sentences featuring extroverted

verbs are marked with phonologically heavy reflexives. As examples of this contrast, Haiman (1983: 803) gives the following sentences:

(1) a. Max washed.
b. Max kicked himself.

As Haiman argues, we can express coreference between the agent and patient of a verb such as "to wash" using only the null form rather than the reflexive marker because it is introverted, that is, it denotes an action that people typically perform on themselves. In contrast, "to kick" is an extroverted verb, which denotes an action people usually perform on others, and so the reflexive marker is obligatory when expressing coreference between an agent and a patient. Reinforcing Haiman, many other researchers have also claimed that the contrast between the light and heavy reflexive marking of objects of verbs is determined by the distinction between introverted and extroverted verbs (i.e. Everaert 1986, 1991; Huang 2000; Jespersen 1924, 1933; Kemmer 1993; König and Siemund 1998, 2000; Reinhart and Reuland 1991, 1993; Reuland 1998; Reuland and Reinhart 1995).

However, an alternative explanation of the contrast between the light and heavy reflexive marking of objects has also been developed. Thus, a number of researchers have argued that heavy reflexive marking is employed when the roles of agent and patient within the event denoted by a sentence are highly distinct conceptually and that light reflexive marking is employed when they are conceptually indistinguishable. Perhaps surprisingly, this rival account was developed by Haiman (1983: 796), who argues that heavy reflexive marking can denote two-participant events in which the agent and patient "are frequently interpreted as the mind and body, or perhaps the two halves of a divided self" while light reflexive marking can denote one-participant events in which the agent and patient are nondistinct. As an example of this semantic contrast, Haiman (1983: 797) gives the following sentences from Turkish:

(5) a. Kendi-ni yas-elbiseler-ile buru-du-∅
self-acc mourning clothes with wrap past 3sg
'S/he dressed in mourning clothes.'
b. Karalara buru-N-du-∅
black clothes wrap-self-past-3sg
'S/he was in (a state of) mourning.'

As Haiman observes, sentence (5a) features a heavy reflexive form and denotes a physical action in which the subject places mourning clothes on the patient which is his or her own body. In contrast, sentence (5b) features a light reflexive form and refers only to the state of mind of the

subject and not to any physical action involving clothes or a body. Thus, according to Haiman, whereas the sentence featuring the heavy reflexive form features both an agent and a patient which is distinct from it, in the sentence featuring a light reflexive form the agent and patient are one and the same.

For Haiman, there is no conflict between these two distinct accounts of the contrast between light and heavy reflexive marking because they apply in separate instances. Thus, while the use of an introverted verb may motivate light reflexive marking in certain instances, the conceptual indistinguishability of the agent and patient motivates light reflexive marking in other instances. Such a view has, however, been challenged by Kemmer (1993) (cf. also Lichtenberk 1985; Maldonado 1992) Kemmer argues that all instances of the contrast between light and heavy reflexive marking rather than just a subset of them are motivated by the distinguishability of the agent and the patient. Thus, for Kemmer, all sentences featuring objects with light reflexive marking refer to "unary or atomic actions" whereas sentences with heavy reflexive marking refer to "complex actions distinguished into their component parts of acting and acted on entities" (Kemmer 1993: 57). Accordingly, she argues that the difference between introverted and extroverted verbs can also be characterized in terms of the distinguishability of participants. Thus, Kemmer (1993: 63) notes that when introverted verbs such as "to shave" occur with a heavy reflexive it is usually to signal contrastive emphasis as in the following Russian example:

(6) Ja myl *sebja*.
I washed self
'I washed *myself* (i.e. not someone else).'

Kemmer argues that contrastively emphasizing the object in this manner has the knock-on effect of increasing the distinction between the agent and the patient thus rendering it analogous to a sentence such as (5a), in which the agent and patient are distinguished. For Kemmer, then, the contrast between all instances of light and heavy reflexive marking can be motivated by the criterion of the relative distinguishability of participants, that is, "the degree to which a single physico-mental entity is conceptually distinguished into separate participants, whether body vs mind, or agent vs unexpectedly contrasting patient" (Kemmer 1993: 66).

In many respects, the claim of Haiman and Kemmer that sentences which feature light and heavy reflexives contrast in terms of the distinguishability of their participants is plausible and appealing. It seems reasonable to claim, for instance, that sentence (5a) denotes (to paraphrase Kemmer) a complex action distinguished into its component parts of

acting and acted-on entities because the sentence can be altered to support a disjoint reference reading:

(7) Adam-i yas-elbiseler-ile buru-du-∅
man-acc mourning clothes with wrap past 3sg
'S/he dressed the man in mourning clothes.'

In this version of the sentence, the separation of the acting and acted-on entities is physical and unarguable. The physical separation underlines the fact that the sentence denotes a complex rather than unary action, moreover, for while the agent is engaged in the physical action of placing clothes on a body, the man is engaged in the distinct physical action of allowing himself to be dressed. In contrast, (5b) cannot support a disjoint reference reading — we cannot replace the reflexive suffix with a noun referring to someone other than the subject. This accords with the fact, moreover, that the action denoted by the sentence is not complex and cannot be split into two separate subevents which apply separately to the agent and the patient. With a mental state such as that denoted in (5b) the role of the agent and the patient are inextricably intertwined — to be the agent of a mental state is to simultaneously undergo it.[3] As a result, the action is necessarily introverted and cannot be performed upon another person. Yet while the contrast between the two Turkish sentences (5a) and (5b) supports Haiman and Kemmer's analysis, one aspect of the examples proves problematic for it. Specifically, if complex actions with distinct agents and patients require heavy reflexive marking, as Haiman and Kemmer maintain, then why should it be that the preferred English gloss of (5a) is a sentence featuring light reflexive marking (i.e. "S/he dresses in mourning clothes")? That is to say, why does English code the action as unary while Turkish codes it as complex? According to Kemmer (1993: 65), "[t]he English phrase *dress herself* is quite appropriate to use of a small child who does not yet have full control of her limbs, or of a recuperating hospital patient. Native speakers would be unlikely to apply the phrase to able-bodied adults unless contrast with another potential object were intended." Why is it, then, that Turkish speakers are able to apply heavy reflexive marking to a sentence denoting an able-bodied adult dressing while English speakers are not?

Such problems proliferate, moreover, when we focus on Kemmer's stronger version of Haiman's claim. Consider, for instance, the following examples:

(8) a. The soldier shaved.
b. The soldier shaved himself.
c. The soldier shaved the sailor.

(9) a. *The soldier slapped.
b. The soldier slapped himself.
c. The soldier slapped the sailor.

As noted above, Kemmer extends the criterion of the relative distinguishability of participants to introverted verbs (as in [8]) and extroverted verbs (as in [9]) by arguing that sentences featuring introverted verbs can support heavy reflexive marking when they receive contrastive emphasis because this heightens the distinction between the agent and the unexpectedly contrasting patient. Yet while such an account provides a motivation for the contrast between (8a) and (8b) it fails to explain why (9a) should be blocked and why a heavy reflexive (as in [9b]) should be necessary in order to signal a reflexive action of slapping. Thus, we cannot explain the blocking of (9a) by reference to either contrastive emphasis or participant distinguishability because there is no reason to suspect that it differs from (8a) along either of these dimensions. The only way that we can explain the blocking of (9a) is by reference to the fact that "to shave" is an introverted verb, which typically denotes a reflexive action, whereas "to slap" is an extroverted verb, which does not typically denote a reflexive action. Yet while the fact that "to slap" cannot support light reflexive marking because it denotes reflexive actions only infrequently is in perfect accord with the view that the contrast between light and heavy reflexives is determined by the distinction between introverted and extroverted verbs, it has nothing to do with Kemmer's criterion of participant distinguishability (at least, that is, if we want to avoid stretching the notion of participant distinguishability to such an extent that it becomes semantically vacuous). In sum, then, Kemmer's account purports to subsume Haiman's analysis of the introverted/extroverted verb distinction under the criterion of the relative distinguishability of participants, but in so doing it fails to explain precisely the contrast that Haiman's theory was set up to explain.

The view that the contrast between light and heavy reflexive marking is determined by the distinguishability of participants is also hampered by the lack of independent diagnostics for determining whether the action denoted by a verb is a complex, two-participant action or a unary, one-participant action. One potential diagnostic has been suggested above: it seems reasonable to suppose that if a verb can support disjoint reference and have its action split across two physically distinct entities then it denotes a complex, two-participant action rather than a unary, one-participant action. However, such a diagnostic suggests that since "to shave" can support disjoint reference (e.g. "The sailor shaved the soldier") it must denote a complex, two-participant action, in which case a

version of the sentence featuring a light reflexive (as in [8a]) should not be possible. Yet while neither Haiman nor Kemmer make use of the disjoint reference diagnostic, neither do they supply alternative diagnostics which could independently determine whether a verb denotes a complex or a unary action. As a result, it is often somewhat difficult to falsify the "participant distinguishability" account of the contrast between light and heavy reflexive marking. In certain cases, however, we do not have to be able to reliably ascertain whether a verb denotes a complex or a unary action in order to be able to falsify this account. Consider, for instance, the following sentences:

(10) a. The prisoner hid in the long grass.
b. The prisoner hid himself in the long grass.
(11) a. *The prisoner concealed in the long grass.
b. The prisoner concealed himself in the long grass.

It is not necessary to determine whether the verbs "to hide" and "to conceal" denote complex or unary actions in order to be able to discern that the above examples are incompatible with the distinguishability account. Thus, as long as we are prepared to make the reasonable assumption that the verbs denote the same kind of event (whether complex or unary) we should expect, on the participant-distinguishability view, that the two verbs should behave similarly with respect to light and heavy reflexive marking. The fact that they do not is, then, a problem for such an account.

A further problem with the account is that the criterion of the relative distinguishability of participants does not apply to a number of verbs. Consider, for instance, the following contrast:

(12) a. For once, the vicar behaved.
b. For once, the vicar behaved himself.

Clearly, the heavy reflexive marking in (12b) is not motivated by contrastive emphasis; the verb "to behave" does not support disjoint reference and its object therefore cannot be contrastively emphasized:

(13) *The vicar behaved *himself* not the bride.

Also, however, it seems highly unlikely that the contrast between (12a) and (12b) can be explained in terms of the number of participants the sentences contain. Thus, there is little evidence to suggest that (12a) contains a single participant whereas (12b) contains two participants as the participant-distinguishability account would predict. Indeed, given that "to behave" does not support disjoint reference (e.g. "*The vicar behaved the bride") it seems most likely that (12a) and (12b) both contain a

single participant. As a result, such an account, which argues that a heavy reflexive signals either the distinction between an agent and an unexpectedly contrasting patient or between two separate "mind" and "body" participants, struggles to account for (12b). If anything, the heavy reflexive in (12b) seems to have an intensifying function — it seems to emphasize that the vicar has actually behaved. It seems doubtful, however, that such a function can be accommodated as part of the criterion of the relative distinguishability of participants. In a similar vein, consider the following sentences:

(14) a. The sailor starved to death on the desert island.
b. The sailor starved himself to death on the desert island.
(15) a. The sailor drowned in the lake.
b. The sailor drowned himself in the lake.

Clearly, while the sentences which feature heavy reflexive marking (i.e. [14b] and [15b]) denote an act of suicide, in which the sailor forms both the agent and the patient of the action, the sentences which feature light reflexive marking (i.e. [14a] and [15a]) do not specify an agent but assert only that the sailor has undergone starvation or drowning, that is, he is the patient of the action. Thus, it may be accurate to argue that the sentences with heavy reflexive marking contain two participants whereas their light reflexive marked equivalents contain only one. However, it scarcely seems reasonable to claim that this has anything to do with the distinguishability of the participants. Thus, it has been conceded that in a sentence such as (5b) the agent and patient are merged into one and hence indistinguishable. Yet neither (14a) nor (15a) merge the agent and the patient into an indistinguishable whole. Instead, they both clearly distinguish the patient and ellipse any reference to an agent. Again, then, it is difficult to explain such data on the basis of the criterion of the relative distinguishability of participants.

There is, however, a further and more serious problem which applies to both Kemmer and Haiman's participant-distinguishability account. As has been argued, examples (5) to (15) provide data which does not behave in accordance with Haiman's and/or Kemmer's criterion of participant distinguishability. Despite this, all of the examples do clearly abide by certain rules. Specifically, it is a remarkable fact that in all of the above examples the sentences which feature a light reflexive are always legal when the verb is introverted and always illegal when the verb is extroverted. Thus, the legal sentences (5b), (8a), (12a), (14a), and (15a) feature a light reflexive and introverted verbs (i.e. "to be in a state of mourning," "to shave," "to behave," "to starve," and "to drown") while the illegal sentence (9a) features a light reflexive and the extroverted verb "to slap."

The contrast between introverted and extroverted verbs even explains the subtle contrast between "to hide" and "to conceal." Since English-speaking children typically learn about the meaning of "to hide" through games of hide and seek it is not surprising that the verb is strongly associated with self-hiding and can therefore act as an introverted verb. In contrast, "to conceal" has no such association and is treated as an extroverted verb. Given this, it is to be expected that the use of the light reflexive in a sentence featuring the verb "to hide" (i.e. [10a]) is legal while the use of the light reflexive in a sentence featuring the verb "to conceal" (i.e. [11a]) is illegal. Yet the correspondence of the light and heavy reflexive contrast with the distinction between introverted and extroverted verbs is not simply a quirk of the handful of examples given above. In fact, all of the legal sentences featuring light reflexives produced by Haiman (1983) or Kemmer (1993) contain an introverted rather than an extroverted verb — a fact which is clearly a problem for the claim that the contrast between light and heavy reflexive marking is motivated by the criterion of participant distinguishability independently of the distinction between introverted and extroverted verbs. Thus, if we wish to argue like Haiman that participant distinguishability motivates light and heavy reflexive marking independently of the distinction between introverted and extroverted verbs or if we wish like Kemmer to argue that the distinction between introverted and extroverted verbs appears to motivate the marking of light and heavy reflexives only because it is part of a more fundamental motivation (namely, participant distinguishability), then it is necessary to find sentences where the contrast between light and heavy reflexives corresponds to the distinction between one- and two-participant events but not to the distinction between introverted and extroverted verbs. Since Haiman and Kemmer never observe any such sentences they have no grounds for claiming that participant distinguishability is an independent or more fundamental motivation for the marking of light and heavy reflexives than the distinction between introverted and extroverted verbs. In contrast, as examples (5) to (15) illustrate, there are many instances where the marking of light and heavy reflexives corresponds to the distinction between introverted and extroverted verbs and not to the criterion of participant distinguishability.

Such examples, then, suggest that the contrast between light and heavy reflexive marking is driven fundamentally by the contrast between sentences featuring introverted and extroverted verbs. Specifically, it appears that light reflexive marking can only be applied when a sentence features an introverted verb and that heavy reflexive marking must always be applied when a sentence features an introverted verb. On such a view, the role of other factors such as participant distinguishability, contrastive

emphasis, and intensification is limited to triggering the heavy reflexive marking of sentences featuring introverted verbs (cf. examples [5a], [6], and [12b]). Clearly, such a view contradicts the accounts developed by Haiman and Kemmer as it suggests that light reflexive marking cannot be driven by factors other than the presence of an introverted verb such as participant distinguishability. In contrast, such a view is compatible with Reinhart and Reuland's (1993) "reflexivity" theory (cf. also Reuland and Reinhart 1995). This theory stipulates that "[a] reflexive-marked predicate is reflexive" (condition A) and that "[a] reflexive predicate is reflexive-marked" (condition B). The theory defines a reflexive predicate as a predicate which has two coreferential arguments and stipulates that a predicate is reflexive-marked if and only if it has a morphologically complex anaphor as an argument or is lexically reflexive. Also, the theory stipulates that a predicate is lexically reflexive if it features an intrinsically reflexive (i.e. introverted) verb. Crucially, as Reinhart and Reuland (1993: 661; cf. also Everaert 1991) note, such an account predicts the following contrasts in Dutch reflexive marking:

(16) a. *Max$_i$ haat zich$_i$.
'Max hates himself (simplex).'
b. Max$_i$ haat zichzelf$_i$.
'Max hates himself (complex).'
c. Max$_i$ schaamt zich$_i$.
'Max shames himself (simplex).'
d. *Max$_i$ schaamt zichzelf$_i$.
'Max shames himself (complex).'

Thus, on Reinhart and Reuland's account, since all of the sentences feature reflexive predicates with two coreferential arguments, they must be reflexive-marked. Clearly, sentences (16b) and (16c) are reflexive-marked since they feature either a morphologically complex anaphor (in the case of [16b]) or a lexical reflexive (in the case of [16c]). As such, they satisfy condition B and are therefore correctly predicted to be legal by Reinhart and Reuland's account. In contrast, sentence (16a) is not reflexive-marked because it features neither a morphologically complex anaphor nor a lexical reflexive. Consequently, it violates condition B and Reinhart and Reuland's account correctly predicts it to be illegal. Finally, sentence (16d) is not reflexive-marked because it features both a lexical reflexive and a morphologically complex anaphor rather than either a lexical reflexive and a morphologically complex anaphor. Consequently, it violates condition B and Reinhart and Reuland's account correctly predicts it to be illegal. In short, Reinhart and Reuland's theory is compatible with the view derived from the examples of light and heavy reflexive marking

so far, namely, that light reflexive marking can only be applied when the verb is introverted and that reflexive marking must be applied when the verb is extroverted.

A theory such as Reinhart and Reuland's, then, which states that co-referential arguments can be realized as light reflexives only when the verb is introverted and that they must be realized as heavy reflexives when the verb is extroverted successfully predicts all of the examples of light and heavy reflexive marking discussed so far in this section in contrast to the accounts developed by Haiman and Kemmer.[4] In fact, however, there remain a number of examples which contradict theories such as Reinhart and Reuland's and which suggest that light and heavy reflexive marking is not motivated solely by the contrast between introverted and extroverted verbs. Consider, for instance, the case of Norwegian. Norwegian has been held up both by Reinhart and Reuland (1993: 666) and by other commentators (i.e. Hellan 1988: 104–130) as a prime example of a language in which the contrast between light and heavy reflexives corresponds to a contrast between introverted and extroverted verbs. In the following example, for instance, a sentence featuring an extroverted verb is marked with the heavy reflexive "seg selv" while a sentence featuring an introverted verb is marked with the light reflexive "seg" (sentence [17a] is from Lødrup 1999: 366, while sentence [17b] is from Reinhart and Reuland 1993: 666):

(17) a. Hun_i beundrer seg_i selv.
'She admires herself.'
b. Jon_i wasket seg_i.
'Jon washed (himself).'

Yet while the distinction between extroverted and introverted verbs can account for the contrast in reflexive marking seen in sentences such as (17a) and (17b) there are other Norwegian sentences which it cannot account for. Consider, for instance, the following sentence (taken from Lødrup 1999: 366):

(18) Hun_i pisker seg_i.
'She flogs herself.'

Clearly, a verb denoting a violent action such as flogging cannot be regarded as introverted. Indeed, verbs denoting violent action form particularly unambiguous examples of extroverted verbs since, as König and Siemund (1998: 58) have argued, "all verbs of violent action denote what has been called other-directed situations, actions that one would not normally perform on oneself." Consequently, the view that light reflexive marking is possible only in the case of introverted verbs is violated by

such an example and thus to explain the contrast between light and heavy reflexive marking in Norwegian it is necessary to invoke not only the contrast between introverted and extroverted verbs but other factors besides (for an analysis of what such factors might be, cf. in particular Lødrup 1999, who argues that the choice between "seg" and the phonologically heavier "seg selv" is motivated by a mental/physical distinction).

Strikingly, similar counterexamples to the view that the contrast between light and heavy reflexive marking is motivated solely by the distinction between introverted and extroverted verbs can be found within English also. Consider, for instance, the following examples:

(19) a. During the trial, Jeffrey perjured himself.
b. *During the trial, Jeffrey perjured.
c. *During the trial, Jeffrey perjured Mary.
(20) a. The driver braced himself for impact.
b. *The driver braced for impact.
c. *The driver braced the passengers for impact.

Clearly, both "perjure" and "brace" are introverted verbs. As sentences (19c) and (20c) demonstrate, for instance, they are entirely unable to denote an action in which the agent is someone other than the patient. Consequently, on any account such as Reinhart and Reuland's which predicts that light reflexive marking should be licensed in a sentence featuring an introverted verb we should expect them to be able to support light reflexive marking. As the examples demonstrate, however, such verbs actually block light reflexive marking and necessitate heavy reflexive marking instead. One possible (though admittedly speculative) explanation for this is that the use of the light reflexive is blocked by such verbs because they used to be extroverted. Thus, as recently as a few centuries ago, such verbs were commonly applied to actions in which the agent is someone other than the patient. Consider, for instance, the following examples (as cited in the Oxford English Dictionary):

(21) a. (Fletcher, 17th century)
'She ... did pray for me that did perjure her'
b. (Swift, 18th century)
'Their gluttony ... brac'd like a drum her oily skin'

Perhaps the shift to the syntactic marking of such verbs as introverted (i.e. via the licensing of the light reflexive) has simply lagged behind the shift in the semantics of these verbs. Perhaps they will eventually acquire the ability to license the light reflexive in keeping with their modern usage as verbs which denote introverted actions. If so, then this suggests that the

distinction between introverted and extroverted verbs does after all apply to the contrast between light and heavy reflexive marking seen with such verbs.

However, there are other English verbs whose violation of the rule that introverted verbs license light reflexives cannot be explained in terms of diachronic evolution. Consider, for instance, the grooming verb "to dry." Since such a verb denotes an introverted action we might expect it to support the use of the light reflexive. Such an expectation is only heightened by the fact that equivalent verbs in other languages do support light reflexives, as the following Norwegian example (from Lødrup 1999: 366) shows:

(22) Hun_i tørker seg_i.
'She dries herself.'

In fact, however, the English verb "to dry" confounds such expectations:

(23) a. John dried himself with a towel.
b. John dried with a towel.

Clearly, sentence (23a) with its heavy reflexive marking is strongly preferable to sentence (23b) with its light reflexive marking as a means of expressing an action in which John is both the agent and patient of the drying. Indeed, sentence (23b) most naturally suggests that John dried something other than himself with a towel (i.e. some dishes). Thus, in contrast to Norwegian, the English verb "to dry" forms an instance of an introverted verb which does not support the use of the light reflexive. Other examples of such cross-linguistic discrepancies are not too hard to find. As Haiman (1983: 805) observes, for instance, in Hungarian, the introverted grooming verb *fésül* 'to comb', as with other introverted verbs such as *mosa* 'to wash', is light reflexive marked with the incorporated verbal suffix "-kod-." However, in English, the verb "to comb" contrasts with other introverted grooming verbs in not supporting the null-form light reflexive:

(24) a. Dave combs his hair every morning.
b. *Dave combs every morning.
c. ?Dave combs himself every morning.

Further counterexamples to the view that introverted verbs license the use of the light reflexive are provided by English verbs such as "to absent oneself," "to avail oneself," to resign oneself," etc., which Brame (1983) has labeled "reflexive predicate verbs." Consider, for instance, the following example (from Brame 1983: 143):

(25) a. John prided himself on his past accomplishments.
b. *John prided on his past accomplishments.
c. *John prided Mary on his past accomplishments.

Clearly, the verb "to pride oneself" is introverted since it is unable to denote an action in which the agent is someone other than the patient, as example (25c) indicates. However, as is apparent from sentences (25a) and (25b) the verb does not license light reflexive marking but necessitates heavy reflexive marking contra the view that all introverted verbs license light reflexive marking (for further discussion of reflexive predicate verbs cf. Brame 1983). Overall, then, such examples serve to remind us that while the distinction between introverted and extroverted verbs may be able to account for a greater proportion of examples of light and heavy reflexive marking than is envisaged in accounts by Haiman (1983) and Kemmer (1993), it fails to account for all such examples (contra Reinhart and Reuland 1993).[5]

3. Light and heavy reflexives as objects of verbs from a diachronic perspective

In general, there has been little analysis of the influence of the distinction between introverted and extroverted sentences upon reflexive marking from a diachronic perspective. However, studies of the evolution of English do form something of an exception to this trend since such studies have frequently observed that introverted and extroverted sentences determine reflexive marking not only in Modern English but in earlier stages of English also. In general, such studies have focused on the impact of the introverted and extroverted sentences upon the marking of objects of verbs. Typically, they have claimed that when an object is coreferent with the subject in a Middle English sentence, it will tend to be realized as a personal pronoun when the verb is introverted but as a personal pronoun and a "self" intensifier when the verb is extroverted. Thus, Faltz (1985: 19) claims that "Middle English examples with reflexively intended plain pronouns tend to be more frequent with verbs denoting normally reflexive activities" (i.e. introverted verbs) and gives the following example in support of this claim:

(26) (*Canterbury Tales* c1385)
he$_i$ cladde hym$_i$ as a poure laborer
'He dressed as a poor laborer.'

Other authors (i.e. Keenan 2002, 2003; Kemmer 1993: 184; König and Siemund 2000) have observed that Old and Middle English verbs of mo-

tion and action tend to occur with personal pronouns rather than "pronoun plus self" forms as in the following examples (from Keenan 2003):

(27) (*Knyghtes Tale* c1385)
Upon a nyght in sleep as he$_i$ hym$_i$ leyde
'During the night as he lay asleep'

(28) (*Ormulum* 1710 c1200)
tatt he$_i$ comm himm$_i$
'that he came'

(29) (*Sultan* 2517 c1400)
but [unless] thou$_i$ repente the$_i$ here
'but unless you repent here'

(30) (*Morte D'Arthur* 1485)
... ye$_i$ muste remembir you$_i$ what ye ar
'... you must remember what you are'

Clearly, such verbs are introverted since the agent and the patient of the actions denoted by the verbs tend to be the same person rather than different people (i.e. if John is the agent of an act of repentance, remembering, coming, lying down, etc., it will also be him who undergoes that act rather than Mary). As such, they reinforce Faltz's view that introverted Middle English verbs tend to block the "pronoun plus self" form in object position. Furthermore, Faltz (1985: 243) argues that a "pronoun plus self" form tends to be used in Middle English when "self marks an object coreferent with the subject when the verb is not normally reflexive" (i.e. when the verb is extroverted) and gives the following example of this:

(31) (*Canterbury Tales* c1385)
him self$_i$ he$_i$ hynge
'He hanged himself.'

Support for such a view is provided by a number of studies (Farr 1905; Keenan 2003; König and Siemund 1998, 2000; Ogura 1989) which have observed that the "pronoun plus self" form is obligatory with verbs of bodily harm throughout the Old and Middle English Period as in the following Old English example (from Keenan 2003):

(32) (*AELS* III. 528 c1000)
heo$_i$ lyfde sceand-lice swa swa swin on meoxe and mid healicum synnum hi sylfe$_i$ fordyd
She lived shamefully even as swine on a dunghill and by deadly sins herself destroyed.

Clearly, such verbs of violent action are extroverted as König and Siemund (1998: 58) have argued. Consequently, examples such as (32) pro-

vide support for the view that in the Old and Middle English period the "pronoun plus self" form was necessary if the object of an extroverted verb was to be interpreted as coreferent with the subject of its sentence. In sum, then, there is evidence that the distinction between introverted and extroverted verbs has impacted upon reflexive marking not only in Modern English but in earlier periods of English also.

While there is evidence that introverted and extroverted verbs determine reflexive marking in both early and modern stages of English, however, the stronger claim that the marking of the distinction between introverted and extroverted verbs in Middle English is directly responsible for the emergence of the Modern English reflexive pronoun has also been made. Thus, König and Siemund (2000: 52) have argued that the reflexive pronoun in Modern English arose directly out of the tendency in Middle English to realize an object coreferent with the subject of a sentence featuring an extroverted verb as a "pronoun plus self" form: "[...] it was the necessity to overtly mark an unexpected coreferential interpretation of co-arguments as well as the necessity to overtly indicate an unexpected coreferential interpretation for other-directed activities which provided the beginning point for the use of intensifiers after object pronouns and thus for the development of reflexive pronouns." Such a view has been opposed, however, by Keenan (2002, 2003) who argues that it is the "self" intensifier's function as a marker of contrastive emphasis rather than as a marker of the distinction between introverted and extroverted verbs which is crucial to the development of the Modern English reflexive pronoun. Keenan argues that the Modern English reflexive pronoun ultimately has its origins in the "pronoun plus self" form which developed at the start of the thirteenth century via a process of "function word proclisis" in which dative pronouns such as "me" and "him" cliticized to the contrastive emphasis marker "self." For Keenan, the "pronoun plus self" form functions primarily as a marker of contrastive emphasis throughout the Middle English period. Consider, for instance, the following early Middle English examples (from Keenan 2003):

(33) (*OE Homilies* XXII c1150–1200)
ac turne we$_i$ to ure drihten ... and maken us$_i$ wei to him
'but let us turn to our lord ... and prepare our way to him'

(34) (*OE Homilies* VII c1150–1200)
man$_i$ makede him sulfen$_i$ fo
'man made himself a foe'

Since these sentences feature the same verb they can hardly be explained in terms of the contrast between introverted and extroverted verbs. Instead, as Keenan argues, we can explain such sentences by postulating

that for Middle English verbs the "self" intensifier functions to mark contrastive emphasis as it does in Old English. According to Keenan, it is only when this form loses its function as a marker of contrastive emphasis at the beginning of the sixteenth century that the Modern English reflexive pronoun begins to emerge and usurps the personal pronoun as the primary means of expressing local binding.[6]

It is difficult to decide between Keenan's (2002, 2003) account of the emergence of the Modern English reflexive pronoun and that given by König and Siemund (2000) since both accounts seem to be strongly supported by the available data. This difficulty suggests the further possibility that the emergence of the Modern English reflexive pronoun may have been determined both by the factors identified by Keenan and those identified by König and Siemund. Thus, it is plausible to assume given the analyses of Keenan and König and Siemund that in the Middle English period verbs are broken up into three distinct categories of introverted verbs, extroverted verbs of bodily harm, and verbs which can be marked for contrastive emphasis. These three categories are distinguished grammatically by the fact that the "self" intensifier is blocked by introverted verbs, necessitated by extroverted verbs of bodily harm, and optional with verbs which can be marked for contrastive emphasis. If Middle English did indeed discriminate between these three categories of verbs, the cessation of the "self" intensifier's role as a marker of contrastive emphasis at the beginning of the sixteenth century (cf. Keenan 2002, 2003 for evidence of this) would have had a number of significant effects. Firstly, if the contrast between the personal pronoun and the "pronoun plus self" form is no longer serving to mark contrastive emphasis in the case of those verbs which could formerly be marked for contrastive emphasis then it creates an opportunity for this contrast to take on a different function. In particular, as Keenan (2002, 2003) observes, it allows the personal pronoun to function as a marker of disjoint reference between the object and the subject of a sentence and the reflexive pronoun to function as a marker of coreference between the object and the subject of a sentence. This in turn may have had an effect upon the expression of the distinction between introverted and extroverted verbs. Specifically, it seems plausible that dedicating the personal pronoun to the expression of disjoint reference after the beginning of the sixteenth century may have been the cause of the abandonment of the personal pronoun and the adoption of the null form as a marker of introverted verbs which occurs at around this time.

Crucially, if such reorganization did take place it would explain why the set of extroverted verbs is so much larger in Modern English than in Middle English. Specifically, while Middle English on the view outlined

here marked some verbs as introverted verbs, some verbs as extroverted verbs and other verbs as neither introverted nor extroverted (i.e. the verbs which could be marked for contrastive emphasis), Modern English ceased to discriminate a category of verbs which were neither introverted nor extroverted when it ceased using the ''self'' intensifier as a marker of contrastive emphasis. Consequently, Modern English was forced to treat verbs either as introverted or extroverted and it therefore dramatically expanded the set of extroverted verbs beyond those of bodily harm to include all of those which had not previously been defined as introverted. Thus, while Middle English did specifically mark out both a set of introverted verbs and a set of extroverted verbs, Modern English merely distinguishes between the set of introverted verbs and the set of all other verbs (which includes verbs which are genuinely extroverted as well as verbs which are neither particularly introverted nor extroverted, that is, verbs which denote actions which are not specifically self- or other-directed). Of course, such an analysis is highly speculative and may ultimately prove to be incorrect. Nevertheless, it does serve to demonstrate that many features of Keenan's account and that of König and Siemund are not inherently incompatible and that they can be integrated into a single unified account. Given the empirical plausibility of both accounts, such an integrated account (or some variant upon it) may well prove to be necessary. A further value of such an analysis is that, in showing that there may well have been a systematic expansion in the set of English verbs that were marked as extroverted at the beginning of the sixteenth century, it suggests the possibility that different definitions of introverted and extroverted verbs can be employed by different languages at different historical periods. Such a view contrasts strongly with the assumption evident in studies such as Haiman (1983) and Reinhart and Reuland (1993) that all languages which embody a distinction between introverted and extroverted verbs employ essentially the same definition of this distinction.

4. Light and heavy reflexives as objects of prepositional phrases

The contrast between light and heavy reflexive marking is apparent not only with regard to the objects of verbs but also with regard to the objects of prepositional phrases. Thus, for a wide variety of languages (Huang [2000: 23] cites English, Japanese, Modern Hebrew, Spanish, Tagalog, and Turkish as examples) both light and heavy reflexives within prepositional phrases can be coreferenced with the subject of their clause. Often, as the following English, French, and Tagalog sentences illustrate, the

personal pronoun, which is typically used in a nonreflexive sense, is recruited for use as a light reflexive form while the anaphor is used as the heavy reflexive form ([35a] is from Kuno 1987: 153; [35b] is the author's own and [35c] is from Faltz 1985: 112):[7]

(35) a. John$_i$ pulled the blanket over him$_i$/himself$_i$.
b. Jean$_i$ a tiré la charrette vers lui$_i$/lui-même$_i$.
'Jean pulled the cart towards him/himself.'
c. nakakita si Juan$_i$ ng ahas malapit sa
see-PAST TOP Juan GOAL snake near
kaniya$_i$/kaniyang sarili$_i$
3SG 3SG-POSS REFL
'Juan saw a snake near him/himself.'

In many other languages, however, no choice between light and heavy reflexives within prepositional phrases is available (Huang [2000: 23] cites German, Hindi, Kinyarwanda, Latin, and Serbo-Croat as examples). Typically, such languages block personal pronouns within prepositional phrases from functioning as reflexives and use only the anaphor as the following Polish, Hindi, and German sentences illustrate ([36a] is the author's own, [36b] is from Huang 2000: 23, and [36c] is from Faltz 1985: 100):

(36) a. Jan$_i$ polozyl ksiazke za *nim$_i$/soba$_i$.
'Jan put the book behind him/himself.'
b. raam$_i$ nee apnee$_i$/*us$_i$-kee nazdiik eek sarp deekh-aa
Ram-ERG self's/3SG-of near one snake see-PF
'Ram saw a snake near himself/him.'
c. Hans$_i$ sah eine Schlange neben *ihm$_i$/sich$_i$.
'Hans saw a snake near him/himself.'

According to Faltz (1985: 99–107), languages which do not allow personal pronouns within prepositional phrases to function as reflexives typically possess "pronominal" (i.e. morphologically simplex) reflexive forms but lack "compound" (i.e. morphologically complex) reflexive forms whereas languages which allow personal pronouns within prepositional phrases to function as reflexives tend to possess compound reflexive forms.

Languages which allow personal pronouns within prepositional phrases to function as light reflexive forms have played a prominent role in recent theorizing about reflexivization. Most notably, such examples are of relevance to Chomsky's (1981, 1986) *binding theory* because they threaten to violate its claim that there is relationship of complementarity in the dis-

tribution of anaphors and personal pronouns.[8] Specifically, they appear to violate the claim that such complementarity arises because anaphors are bound within their own minimal governing category whereas personal pronouns are free within their own minimal governing category. As an instance of this, consider the following sentences:

(37) a. They$_i$ saw a snake near them$_i$.
b. They$_i$ saw a snake near themselves$_i$.

It would seem that (37a) is a problem for the binding theory because it is an example of a sentence in which a personal pronoun has been bound within its own minimal governing category in violation of principle B. In response to this apparent counterexample, Chomsky (1981, 1986) has argued that such a sentence does not violate principle B because it contains a small clause:

(38) They saw a snake$_i$ [PRO$_i$ near them].

Haegemann (1994: 231) argues that under a small-clause analysis the sentence is semantically equivalent to the following sentence:

(39) They$_i$ saw a snake which was near them$_i$.

On this account, then, (37a) contains a small clause with the result that its personal pronoun is free within its minimal governing category in accordance with principle B. In order to explain sentence (37b), Chomsky's account assumes that the sentence does not contain a small clause in contrast to sentence (37a). Crucially, such an assumption allows Chomsky to argue that the anaphor within the sentence is bound within its minimal governing category in accordance with principle A.

Such an analysis has, however, been criticized by many researchers (Culicover 1997; Faltz 1985; Garcia 1995; Jackendoff 1987; Kuno 1987; Levinson 1991; Wilkins 1988). Thus, Faltz (1985) has argued that a sentence such as (37a) contains a prepositional phrase rather than a reduced relative clause because while a direct object can move to the right of a prepositional phrase via heavy-NP shift (as in 40a) a direct object cannot move to the right of a reduced relative clause via heavy-NP shift (as in 40c):

(40) a. John saw near him a snake with green stripes and purple polka dots.
b. While in New York, John coveted a very elegant and beautiful girl from Chicago.
c. *While in New York, John coveted from Chicago a very elegant and beautiful girl.

Similarly, Jackendoff (1987) has argued that in sentences such as the following, the prepositional phrase cannot be interpreted as a simple predication:

(41) The box has books in it.

As evidence of this, Jackendoff claims that whilst simple predications can be questioned the prepositional phrases in such sentences cannot:

(42) *What does the box have books in?

Also, as Faltz (1985: 103) has observed, such an account fails to explain why the personal pronoun should be acceptable in the English sentence (37a) but not in its German equivalent:

(43) Hans_i sah eine Schlange neben sich_i/*ihm_i.

It is also difficult to imagine how the small-clause analysis in (38) can be extended to examples such as the following (from Quirk et al. 1985: 360):

(44) He_i looked about him_i.

A further problem for the small-clause analysis can be discerned in the following example:

(45) a. John put the book behind him.
b. John put the book_i [PRO_i behind him].
c. *John put the book which was behind him.

As (45b) demonstrates, a small-clause analysis can be applied to (45a). Doing so, however, yields a sentence which fails to capture the meaning of (45a) as the semantic gloss in (45c) illustrates. Moreover, as (45c) also suggests, if the prepositional phrase in (45a) was attached to the direct object rather than the verb, then "put" would lack an argument and the sentence would be illegal. Thus, the small-clause analysis appears to be less plausible with a sentence such as (45a) than it is with a sentence such as (37a).

Chomsky's binding theory is not the only formal theory of reflexivization for which the behavior of reflexives in prepositional phrases is problematic however. Such difficulties also arise for Pollard and Sag's (1992) influential "o-binding" theory of reflexivization (Pollard and Sag 1994; Runner 1998). In this account, it is argued that the distribution of anaphors and personal pronouns can best be accounted for in terms of a hierarchy of grammatical relations rather than in terms of configurational constraints. Thus, Pollard and Sag argue that an anaphor can be said to be "locally o-commanded" if it has a less oblique coargument and "locally o-bound" if there is an antecedent which o-commands the

anaphor and is coindexed with it. The distribution of anaphors in Pollard and Sag's theory is then determined by principle A, which stipulates that "[a] locally o-commanded anaphor must be locally o-bound" (Pollard and Sag 1922: 300). In contrast, the distribution of personal pronouns is predicted by principle B, which states that "[a] personal pronoun must be locally o-free" where locally free means not locally bound. According to Pollard and Sag, such a theory can account for the behavior of anaphors within prepositional phrases in sentences such as the following:

(46) a. Mary talked to John_i about himself_i.
b. *Mary talked about John_i to himself_i.

Thus, Pollard and Sag (1992: 286) claim that the objects of prepositional phrases headed by nonpredicative prepositions are subject to principle A. Consequently, principle A predicts the legality of (46a) since its anaphor is more oblique than its antecedent. Also, however, principle B predicts the illegality of (46b) since its anaphor is less oblique than the antecedent. Unfortunately, Pollard and Sag do not give an account of sentences such as (37a) and (37b) in which the prepositional phrases are headed by predicative prepositions. Certainly, it is not easy to see how the predicative prepositions could allow both the personal pronoun in (37a) to be o-free and the anaphor in (37b) to be o-bound. However, similar sentences featuring nonpredicative prepositions clearly violate Pollard and Sag's account:

(47) a. Mary_i brought her lunch with her_i.
b. John_i has a Spanish look about him_i.
c. He_i looked about him_i.
d. The tramp_i had a lot of money on him_i.

The prepositions in these sentences are nonpredicative (and the sentences do not contain implicit predicates as Jackendoff [1987] notes). As a consequence, the personal pronouns in (47) are o-bound in violation of principle B and we should expect them to be illegal. The fact that they are not is a problem for Pollard and Sag's account.

The problems encountered by such accounts of the behavior of light and heavy reflexives within prepositional phrases is compounded by the tendency of certain sentences featuring prepositional phrases to block heavy reflexives:

(48) a. Mary_i brought her lunch with her_i/*herself_i.
b. John_i has a Spanish look about him_i/*himself_i.
c. He_i looked about him_i/*himself_i.
d. The tramp_i had a lot of money on him_i/*himself_i.

e. The box$_i$ has a spider in it$_i$/*itself$_i$.
f. Dave$_i$ put his past behind him$_i$/*himself$_i$.

Clearly, even if Chomsky's small-clause analysis of example (37a) were valid it would still fail to motivate the fact that in the above examples the personal pronoun is legal while the anaphor is illegal. Indeed, given Jackendoff's (1987) arguments in favor of the view that such examples do not contain an implicit predicate the above data is precisely the opposite of what we should expect on the basis of Chomsky's small-clause analysis (cf. Culicover 1997: 396). Similarly, the examples are problematic for Pollard and Sag's "o-binding" account. Thus, as has already been mentioned, Pollard and Sag's account wrongly predicts that the personal pronoun should be blocked in such sentences. Also, however, Pollard and Sag's account wrongly predicts that the anaphor should be acceptable since the sentence satisfies their version of principle A.

One study which does claim to be able to explain examples such as (48) is that of Wilkins (1988). In Wilkins' view, the function of an anaphor is to license the assignment of multiple thematic roles to another term. Thus, in a sentence such as "Bill kicked himself" the anaphor licenses the assignment of both the patient and the agent to the term "Bill." Clearly, such a theory encounters difficulties accounting for sentences featuring introverted verbs (e.g. "Bill shaved") in which a term is both an agent and a patient even in the absence of an anaphor or for the cross-linguistically observed tendency for personal pronouns to appear in benefactive phrases (Faltz 1985: 104). Nevertheless, the theory does provide an interesting explanation of the sentences in example (48). Consider, for instance, the following:

(49) The list$_i$ includes my name on it$_i$.

Wilkins argues that (49) and sentences like it mean "essentially the same thing with or without the PP constituent" (Wilkins 1988: 202). Thus, she argues that (49) can lose its prepositional phrase (e.g. "The list includes my name") without loss of meaning because the prepositional phrase "on it" has a location role and as such it merely repeats the location role which has already been assigned to "the list." For Wilkins, such repetition explains why the anaphor is blocked in such a construction. Specifically, the anaphor "is not appropriate since there is no dual role assignment" (Wilkins 1988: 203). Thus, in (49) only a single thematic role (i.e. that of location) is assigned to "the list" and the anaphor is therefore blocked since its function is to license multiple role assignment.

Yet while Wilkins' theory can be applied effectively to an example such as (49) there are a number of relevant examples that it struggles to ac-

count for. Thus, the following sentence suggests that Wilkins is correct to identify "the list" as a location:

(50) My name is included on the list.

Indeed (50) suggests that the prepositional phrase in (49) is the type of phrase that arises when prepositional phrases are promoted to the subject role in English sentences. However, a similar argument can scarcely be made with the following example (from Quirk et al. 1985: 360):

(51) He_i looked about him_i/*himself_i.

In (51) the subject is clearly an agent rather than a location in contrast to (49). Moreover, the prepositional phrase, in denoting a location, is clearly not repeating information denoted by the subject as is evidenced by the fact that (51) does not mean the same as the following:

(52) He looked.

Thus, in (51) the anaphor is blocked even though the two roles of agent and location are being assigned to the term "He." Similar arguments can be made regarding a number of other constructions moreover:

(53) a. The tramp_i had a lot of money on him_i/*himself_i.
b. The tramp had a lot of money.

In (53a) the tramp is both a possessor and a location while in (53b) he is only a possessor since the sentence does not necessitate that the money is in the same place as the tramp. Clearly, the meaning of such a sentence is not retained when the prepositional phrase is dropped and thus the prepositional phrase is not simply repeating the meaning contained within the subject.

An alternative and less problematic account of the sentences contained in example (48) is provided by Quirk et al. (1985: 360; cf. also Faltz 1985: 106). For Quirk et al., what is critical about such sentences is not that, in certain instances, their prepositional phrases can be dropped without loss of meaning but rather that the sentences do not support disjoint reference:

(54) a. Mary_i brought her lunch with her_i/*herself_i/*Susan_z.
b. John_i has a Spanish look about him_i/*himself_i/*Sarah_z.
c. He_i looked about him_i/*himself_i/*her_z.
d. The tramp_i has a lot of money on him_i/*himself_i/*Susan_z.
e. The box_i has a spider in it_i/*itself_i/*the bath_z.
f. Dave_i put his past behind him_i/*himself_i/*Colin_z.

Crucially, it seems to be generally true for English that if a disjoint reference reading is not supported by a sentence then the anaphor is blocked

from appearing within the prepositional phrase. A similar pattern is observed in many other languages as the following examples from French, Dutch, Italian, and Norwegian illustrate (examples [55a]–[55c] are the author's own and example [55d] is from Lødrup 1999: 369):

(55) a. Il_i a beaucoup de gens contre lui_i/*lui_i-même/$Marie_z$.
'He has many people against him/himself/Marie.'
b. Jan_i had zijn portemonee bij $zich_i$/*$zichzelf_i$/*$Piet_z$.
'Jan had his wallet on him/himself/Piet.'
c. $Giovanni_i$ ha preso le sue chiavi con se_i/*se $stesso_i$/*$Maria_z$.
'Giovanni took his keys with him/*himself/*Maria.'
d. Hun_i kikket rundt seg_i/?seg_i selv.
'She looked around herself.'

One potential counterexample from English to Quirk et al.'s analysis is the following:

(56) a. The $general_i$ looked around him_i.
b. ??The $general_i$ looked around $himself_i$.
c. The $general_i$ looked around the $castle_z$.

As (56a) and (56b) demonstrate, the construction is acceptable when it features a personal pronoun but not when it features an anaphor. Yet even though the anaphor is blocked from the construction the disjoint reference reading is still supported as (56c) shows. In fact, the pattern shown by example (56) is a conflation of the patterns associated with two separate interpretations. Thus, in (56a) "to look around" denotes an act of looking at one's surroundings rather than at a specific object with the consequence that the sentence is semantically equivalent to:

(57) The general looked around.

In contrast, (56c) denotes an act of inspecting a specific object (in this case, a castle) with the consequence that the sentence is not semantically equivalent to (57). Thus, when the verb refers to an act of looking at one's surroundings, the personal pronoun is legal but both the anaphor and the disjoint reference reading are blocked (in accordance with Quirk et al.'s predictions). Similarly, when the verb refers to the inspection of a specific object, the personal pronoun is blocked, the disjoint reference reading is allowed, and the use of the anaphor is marginal (since it carries the conceptually odd implication of the general somehow moving around himself and inspecting himself). The patterns associated with these two interpretations, then, appear to violate the account of Quirk et al. when they are conflated, but when they are considered separately they are found not to violate it (a similar, though less subtle, example of this problem arises

with [54d], which licenses disjoint reference when the sentence is interpreted to refer to the act of placing a bet). A further potential English counterexample is noted by Quirk et al. (1985: 360):

(58) She$_i$ was beside *her$_i$/herself$_i$/*John$_z$.

When the construction retains the idiomatic meaning of being anxious (rather than the literal meaning of being physically next to someone) the personal pronoun and the disjoint reference reading are blocked and the anaphor is legal — a pattern which violates Quirk et al.'s account. The most likely reason for this is that the idiomatic reading features a compound verb "to be beside" and thus that the pronouns in (58) form the sentence's direct object rather than the object of a prepositional phrase. Strikingly, French contrasts with English in blocking the anaphor but not the personal pronoun in such a sentence:

(59) Elle$_i$ etait hors d'elle$_i$/*elle$_i$-même/*Jean$_i$.
'She was beside her/herself/John.'

A simple explanation for this contrast is that in the French example, in contrast to the English example, the reflexive is treated as the object of the preposition "hors" rather than the object of a compound verb comprised of the copula and a preposition. If this is the case, then the pattern of legality seen in sentence (59) is in accordance with that observed in the English sentences in example (54) and their cross-linguistic counterparts in example (55). When languages do exhibit this pattern, any cross-linguistic variation rarely amounts to a violation of this pattern. Thus, in Dutch we do not find a direct equivalent to the English sentence (54e) but rather the following sentence:

(60) De doos bevatte een spin
'The box contains a spider.'

While this does not directly follow the pattern seen in English nor can it be said to violate it. Thus, it does not constitute evidence against Quirk et al.'s claim that it is the inability of sentences such as those observed in example (54) to sustain disjoint reference which leads them to block the anaphor.

Crucially, if Quirk et al.'s analysis of the sentences contained in example (48) is correct, it shows that the distinction between introversion and extroversion determines not only whether the objects of verbs receive light or heavy reflexive marking but also whether the objects of prepositional phrases receive light or heavy reflexive marking. Thus, while none of the verbs in the sentences in example (48) are introverted, the sentences themselves can be regarded as introverted since they require the subject to

be coreferenced with the object of the prepositional phrase. In contrast, the sentences in examples (37a)–(39) can be regarded as extroverted since they allow disjoint reference as the following example demonstrates:

(61) They saw a snake near Colin.

Consequently, such sentences demonstrate that when sentences denote introverted, self-directed actions objects of prepositional phrases like objects of verbs tend to receive light reflexive marking and that when sentences denote extroverted, other-directed actions objects of prepositional phrases like objects of verbs tend to receive heavy reflexive marking. Also, however, such sentences demonstrate that introversion and extroversion are a property not only of the actions denoted by verbs but also of the actions denoted by clauses. Thus, the sentences in example (48) receive light reflexive marking even though they lack an introverted verb because the action denoted by the clause as a whole is introverted. Such sentences also demonstrate a different pattern of legality to sentences featuring light and heavy reflexive objects. Thus, whereas the heavy reflexive form is often acceptable as the object of a verb in an introverted sentence, the heavy reflexive form is never acceptable within the prepositional phrase of an introverted sentence. This is presumably because, in the case of prepositional phrases, introverted sentences lack a functional motivation for the heavy reflexive such as contrastive emphasis. Also, whereas light reflexive marking is unacceptable as the object of a verb in an extroverted sentence, the light reflexive is acceptable within the prepositional phrases of extroverted sentences (as examples [37a]–[39] show). Most typically, it is argued that the use of light and heavy marking in the prepositional phrases of extroverted sentences is determined by "logophoricity" (Banfield 1982; Bosch 1983; Cantrall 1974; Katagiri 1991; Stein and Wright 1995; Zribi-Hertz 1989). Consider, for instance, the following example (from Cantrall 1974):

(62) a. The women$_i$ were standing in the background with the children behind them$_i$.
b. The women$_i$ were standing in the background with the children behind themselves$_i$.

As Cantrall notes, if these sentences describe a photograph in which the women stand with their backs to the camera, then in (62a) the children are located in the background of the picture with the women facing them whereas in (62b) the children are located in the foreground of the picture with the women facing away from them. Thus, (62a) takes the viewpoint of the speaker whereas (62b) takes the sentence-internal viewpoint of the women (the so-called "logophoric" reading).

Given that while the contrast between the sentences in examples (37a)–(39) and those of example (48) does seem to be influenced by the contrast between introverted and extroverted sentences, it is perhaps unsurprising that it is not captured by accounts of reflexivization based on grammatical relations (i.e. Pollard and Sag 1992), thematic roles (i.e. Wilkins 1988), or configurational constraints (i.e. Chomsky 1981, 1986). It is perhaps somewhat surprising, however, that the contrast is not predicted by Reinhart and Reuland's (1993) "reflexivity" theory in which the contrast between introverted and extroverted verbs plays a central role. In applying their theory to prepositional phrases, Reinhart and Reuland distinguish between phrases featuring spatial prepositions and phrases featuring other types of prepositions. Consider, for instance, the following sentences (both from Reinhart and Reuland 1993: 686):

(63) a. Lucie_i explained Max to *her_i/herself_i.
b. Max_i put the book next to him_i/himself_i.

According to Reinhart and Reuland (1993: 664), since the prepositional phrase in sentence (63a) lacks a spatial preposition it does not form its own predicate distinct from that formed by the verb "explain." Consequently, both the personal pronoun and the anaphor within the prepositional phrase form arguments of the predicate formed by the verb. As such, the predicate formed by the verb has two coreferential arguments (i.e. "Lucie" and either the personal pronoun or anaphor) and it therefore constitutes a reflexive predicate which need to be reflexive-marked. Since the anaphor is morphologically complex, it supplies such reflexive marking. Consequently, it satisfies condition B and is legal. In contrast, since the personal pronoun fails to supply such marking, it fails to satisfy condition B and is illegal. In the case of sentence (63b), however, the prepositional phrase features a spatial preposition and it consequently forms its own predicate distinct from that formed by the verb. Consequently, both the personal pronoun and the anaphor within the prepositional phrase form arguments of the predicate formed by preposition rather than that formed by the verb. Since the predicate formed by the preposition lacks two coreferential arguments (i.e. the personal pronoun and anaphor both corefer with "Max" — an argument external to the predicate formed by the preposition), it does not constitute a reflexive predicate and condition B therefore does not apply to it. Reinhart and Reuland also argue that condition A does not apply to it either because it is not a syntactic predicate as it lacks a syntactically realized subject. Since the two conditions do not apply to the predicate, the choice between the personal pronoun and the anaphor must be determined by a different factor. According to Reinhart and Reuland (1993: 687), this other factor is logophoricity.

Specifically, they argue that in a sentence such as (63b), a logophoric reading will select for the anaphor whereas a nonlogophoric reading will select for the pronoun.

While Reinhart and Reuland's account can explain the reflexive marking of sentences (63a) and (63b), however, the reflexive marking of the sentences of example (48) presents multiple problems for Reinhart and Reuland's account. Firstly, since the prepositional phrases of sentences (48a) and (48b), like that of sentence (63a), feature nonspatial prepositions (i.e. "with" and nonspatial "about") they do not form a separate predicate. Consequently, the pronouns and anaphors within them form arguments of the predicate formed by the verb. Since this predicate has two coreferential arguments, it constitutes a reflexive predicate which must be reflexive-marked. However, this reflexive marking is not supplied by the verb (since both "brought" in [48a] and "has" in [48b] are extroverted) and is blocked in the case of the morphologically complex anaphor. Instead, the "reflexive marking" of the reflexive predicates in (48a) and (48b) is achieved by the personal pronoun "him" in direct contravention of condition B. Secondly, since the prepositional phrases of sentences (48c)–(48f), like that of sentence (63b), feature spatial prepositions (i.e. spatial "about," "on," "in," and "behind") they form separate predicates with prepositions as their head rather than the verb. Since these predicates lack both a syntactically realized subject and two coreferential arguments, neither condition A nor condition B applies to them. As neither of these conditions can be used to rule out the use of either the personal pronoun or the anaphor within the prepositional phrase, Reinhart and Reuland's account suggests that the sentences should be acceptable whether they feature a personal pronoun or an anaphor (although the resulting versions of the sentence should differ in terms of logophoricity). The fact that these sentences block the use of the anaphor regardless of whether they occur in a logophoric discourse context or not is, then, a further direct contravention of Reinhart and Reuland's account. Thirdly, if we accept, as appears likely, that the anaphor is blocked in the sentences of example (48) because the sentences are introverted, it undermines Reinhart and Reuland's claim that the reflexive marking of such sentences is determined by their predicate structure. Thus, Reinhart and Reuland's account suggests that the constraints which determine the reflexive marking of sentences (48b) should be different to the constraints which determine the reflexive marking of sentences (48f) because the two sets of sentences have different predicate structures. In contrast, the view that the introverted nature of the sentences has blocked the anaphor in the sentences of example (48) assumes that the same constraint applies to all of the sentences regardless of their predicate structure. Finally, sen-

tences such as those in example (48) are also problematic for Reinhart and Reuland's view that introversion and extroversion are a property of verbs which applies across predicates. Thus, according to Reinhart and Reuland, an intrinsically reflexive verb (i.e. an introverted verb) can block a morphologically complex anaphor if the two occur within the same predicate. In contrast, the sentences in example (48) demonstrate that an introverted sentence can block a morphologically complex anaphor even in the absence of an introverted verb and even when (in the case of sentences [48c]–[48f]) the verb does not occur in the same predicate as the anaphor.

5. Light and heavy reflexives as possessives

The influence of the contrast between introverted and extroverted sentences can also be detected in a further aspect of reflexivization, namely, the contrast between simplex and complex possessives:

(64) a. Nigel_i was washing his_i car.
b. Nigel_i was washing his_i own car.

Discussion of this contrast has focused on the issue of whether it can be validly seen as an aspect of reflexivization at all and, in particular, on whether complex possessives (such as that in [64b]) constitute anaphors or not. In general, while a number of researchers (i.e. Baker 1995; Burzio 1989; Dowty 1980; Quirk et al. 1985; Reinhart 1983) have argued that complex possessives such as "his own" and related forms in other languages do not constitute anaphors, most researchers have argued that they do (i.e. Chomsky 1986; Fiengo and Higginbotham 1981; Fretheim 1984; Hellan 1988; Higginbotham 1985; Lebeaux 1983; Safir 1997; Saxon 1991). Thus, in support of the view that complex possessives such as "his own" constitute anaphors it has been argued by Chomsky (1986) and Higginbotham (1985) that they require a structurally local antecedent:

(65) a. He_i gave it_j his_i own/its_j own/*her_z own name.
b. He_i read that his_i own/*her_z own play had bombed on Broadway.

More specifically, as Zribi-Hertz (1995) notes, examples such as the following have been used to argue that complex possessives such as "his own" resemble anaphors in abiding by the c-command condition whereas simplex possessives such as "his" resemble personal pronouns in not abiding by it:

(66) a. John$_i$'s sister hates his$_i$ dog.
b. *John$_i$'s sister hates his$_i$ own dog.
c. John$_i$'s sister hates him$_i$.
d. *John$_i$'s sister hates himself$_i$.

Also, as Lees and Klima (1963) have noted, complex possessives such as "his own" are like anaphors in that they cannot be used ostensively while simplex possessives such as "his" are like personal pronouns in that they cannot. More broadly, as Zribi-Hertz (1995) has observed, "his own" and "himself" contrast with their nonreflexive counterparts because they cannot be r-free but require an explicit antecedent:

(67) a. Take his$_i$ coat, not hers$_z$!
b. *Take his$_i$ own coat, not hers$_z$!
c. Criticize him$_i$, not her$_z$!
d. *Criticize himself$_i$, not her$_z$!

Finally, "his own," like the anaphor, is also able to cancel the disjoint reference restriction placed on its nonreflexive counterpart (examples from Higginbotham 1985 and Williams 1987):

(68) a. John$_i$ is his$_{*i/z}$ enemy.
b. John$_i$ is his$_{i/*z}$ own enemy.
c. John$_i$ took his$_{*i/z}$ picture.
d. John$_i$ took his$_{i/*z}$ own picture.

In all of these respects, then, it can be argued that the complex possessive "his own" resembles the anaphor "himself" while "his" resembles the personal pronoun. Consequently, the behavior of "his own" can be treated as an aspect of reflexivization.[9]

Moreover, "his own" also resembles other reflexive forms in undergoing phonological reduction in introverted sentences. Consider, for instance, the following examples ([69a]–[69f] are from Saxon 1991: 509 and [69g] is from Zribi-Hertz 1995: 366):

(69) a. He$_i$ blew his$_i$/*his$_i$ own cool.
b. He$_i$'s lost his$_i$/*his$_i$ own charm.
c. Keep your$_i$/*your$_i$ own shirt on!
d. He$_i$'s said his$_i$/*his$_i$ own piece.
e. He$_i$'s met his$_i$/*his$_i$ own match.
f. He$_i$ met his$_i$/*his$_i$ own maker.
g. John$_i$ is mature for his$_i$/*his$_i$ own age.

As Saxon notes, the blocking of the complex possessives in these sentences is linked to the fact that they can only be given a coreferential reading and do not support disjoint reference:

(70) a. He blew his_i/*his_i own/*Mary's$_z$ cool.
b. He's lost his_i/*his_i own/*Mary's$_z$ charm.
c. Keep $your_i$/*$your_i$ own/*Mary's$_z$ shirt on!
d. He's said his_i/*his_i own/*Mary's$_z$ piece.
e. He's met his_i/*his_i own/*Mary's$_z$ match.
f. He met his_i/*his_i own/*Mary's$_z$ maker.
g. John is mature for his_i/*his_i own/*Mary's$_z$ age.

Specifically, Saxon (1991: 509) observes that the sentences necessitate a coreferential reading either because they involve "in some sense one's own action on an inalienably possessed object" (as in [69a]–[69d]) or because they involve "unique entities identified by possessed NPs" (as in [69e] and [69f]). Moreover, as Saxon also points out, when such sentences do support a disjoint reference reading they can also take complex possessives (cf. also example [64] above):

(71) $Harry_i$ blew his_i/his_i own/John's$_z$ cover.

Clearly, then, what Saxon has identified with respect to possessives is a further instance of a construction whose reflexive marking is determined by the contrast between introversion and extroversion. Thus, when a sentence is introverted it allows possessives to take only light reflexive marking but when a sentence is extroverted it allows possessives to take either light or heavy reflexive marking. As was the case with the objects of prepositional phrases, the reflexive marking of possessives seems to be determined by whether the action denoted by the sentence as a whole and not simply by whether the action denoted by the verb is introverted or extroverted. Thus, the possessives in example (69) receive light reflexive marking even though the sentences that they occur in lack introverted verbs because the actions denoted by the sentences as a whole are introverted. Interestingly, a similar pattern can be observed in a number of other languages, as the following French, Dutch, Italian, and German examples illustrate:

(72) a. $Jean_i$ a gardé son_i/*son_i propre sang-froid/*le sang-froid de Marie$_z$.
'Jean has kept his/his own/Marie's cool.'
b. Jan_i vond $zijn_i$/*$zijn_i$ eigen/*Piet's$_z$ gelijke.
'Jan met his/his own/Piet's match.'
c. $Giovanni_i$ ha mantenuto il suo_i/*suo_i proprio calmo/*calmo di Maria$_z$.
'Giovanni has kept his/*his own/Maria's cool.'
d. $Hans_i$ ist reif für $sein_i$/*$sein_i$ eigenes/*Martins$_z$ Alter.
'Hans is mature for his/his own/Martin's age.'

Such a pattern of reflexive marking is similar to that applied to the objects of prepositional phrases in a number of other respects also. Thus, introverted sentences block the heavy reflexive marking of possessives just as they block the heavy reflexive marking of objects of prepositional phrases (as opposed to allowing it under special circumstances as is the case with objects of verbs). As with introverted sentences containing prepositional phrases, the reason for this seems simply to be a lack of functional motivation for the heavy reflexive form such as contrastive emphasis. Also, however, extroverted sentences support the light reflexive marking of possessives just as they support the light reflexive marking of objects of prepositional phrases (and here again they contrast with objects of verbs). Moreover, the choice between the light and heavy reflexive marking of possessives in extroverted sentences is semantically motivated just as the choice between the light and heavy reflexive marking of the objects of prepositional phrases is. Consider, for instance, the following sentences:

(73) a. Kristin wants her own car.
b. Kristin wants her car.

Drawing on some work in Russian reflexivization by Timberlake (1980), Saxon argues that while (73a) can support both a referential and an attributive reading, (73b) can support only a referential reading. In the referential reading of (73a), where the sentence refers to a specific car which belongs to Kristin, there is an element of contrastivity (i.e. Kristin wants her own car not someone else's). Such a referential reading also holds for (73b), which presupposes that there is a specific car belonging to Kristin. The element of contrastivity is optional with this sentence, however, and can only be brought out via contrastive emphasis. In the attributive reading of (73a), there is no specific car which belongs to Kristin. As Saxon (1991: 504) notes, "any car (so long as it would count as hers) would satisfy Kristin's wish." In contrast, (73b) lacks such an attributive reading. In these two respects, then, the contrast between the light and heavy reflexive marking of possessives in extroverted sentences is similar to the contrast between the light and heavy reflexive marking of the objects of prepositional phrases in extroverted sentences.

The influence of introversion and extroversion on the reflexive marking of possessives can also be seen in sentences featuring process nominal phrases. While there is an extensive literature probing the link between reflexivization and process nominals (Chomsky 1970; Di Sciullo 1996; Giorgi 1987; Grimshaw 1990; Wilkins 1988) it has not previously been observed that phonological reduction in such sentences is influenced by the contrast between introverted and extroverted sentences:

(74) a. Mary possessed self-belief.
b. Mary possessed belief in herself.
c. Mary possessed her self-belief (from an early age).
d. *Mary possessed John's self-belief.

(75) a. Mary discussed self-belief.
b. Mary discussed belief in oneself.
c. Mary discussed her self-belief.
d. Mary discussed John's self-belief.

Clearly, the sentences in example (74) are introverted since they do not support disjoint reference, as (74d) illustrates. In contrast, the sentences in example (75) can be considered extroverted since they do support disjoint reference, as (75d) illustrates. As is typical of the contrast between introverted and extroverted sentences, moreover, the introverted sentences in example (74) tend to be associated with lighter forms of reflexive marking than extroverted sentences. Specifically, in an introverted sentence featuring a process nominal such as (74), a coreferential reading can be achieved with a null-form possessive while in an extroverted sentence featuring a process nominal such as (75), a coreferential reading requires a simplex possessive. Thus, (74a) can be said to be phonologically reduced compared to (74b) insofar as it lacks an explicit possessive antecedent for the "self-" reflexive marker. Nevertheless, (74a) clearly supports a coreferential reading as its semantic equivalence to (74b) illustrates. In contrast, (75a) can be said to be phonologically reduced compared to (75b) insofar as it lacks an explicit possessive antecedent for the "self-" reflexive marker. However, as its semantic equivalence to (75b) illustrates, (75a) does not support a coreferential reading in which the "self-" reflexive marker refers to "Mary."[10] Interestingly, the particular pattern of reflexive marking supported by such sentences is closer to that applied to the objects of verbs than that applied to the objects of prepositional phrases and other types of possessives. Specifically, the introverted sentences in example (74) support both light and heavy reflexive marking just as the objects of verbs in introverted sentences do (as 74c shows) while the extroverted sentences in example (74) support only heavy reflexive marking just as the objects of verbs in extroverted sentences do (as [75a] shows). A further point of interest is that in the process nominal construction in example (74) it is the antecedent rather than the anaphor which is subject to phonological reduction (i.e. in [74a] the possessive antecedent has been reduced to a null form rather than the reflexive marker). This forms a clear contrast to other examples of phonological reduction in reflexivization which, as noted in the previous sections, typically reduce the reflexive form rather than its antecedent.[11]

6. Conclusion

In the current article, the phenomenon of light and heavy reflexive marking has been investigated. In particular, the article has reviewed Haiman's (1983) claim that light reflexives are employed in sentences featuring introverted verbs while heavy reflexives are employed in sentences featuring extroverted verbs. While the current article has defended Haiman's claim that light and heavy reflexive marking is influenced by the distinction between introverted and extroverted verbs, it has also criticized a number of other features of Haiman's analysis. Firstly, the article has argued that Haiman is wrong to claim that some instances of light and heavy reflexive marking are determined by the distinction between introverted and extroverted verbs while other instances are determined by the criterion of participant distinguishability. Specifically, it has been argued that, while the criterion of participant distinguishability is problematic as an explanation of the instances of light and heavy reflexive marking cited by Haiman, such instances can all successfully be explained by the distinction between introverted and extroverted verbs. A second criticism of Haiman's account advanced in the present article has been that introversion and extroversion are not simply properties of the actions denoted by verbs, as Haiman assumes, but properties of the actions denoted by clauses also. In support of this, it was shown that the light and heavy marking of objects of prepositional phrases and of possessives is determined by whether the sentence they occur in is introverted or extroverted and not by whether the verb that they co-occur with is introverted or extroverted. Thirdly, Haiman's assumption that all languages which manifest a distinction between light and heavy reflexive marking embody essentially the same distinction between introverted and extroverted verbs was criticized. Thus, it was shown that Middle English and Modern English contrast in terms of the sets of verbs that they mark as extroverted and in doing so embody different notions of extroversion. Finally, it was demonstrated that in languages such as English and Norwegian there are many instances of the contrast between light and heavy reflexive marking which can only be explained on the basis of factors other than the distinction between introverted and extroverted verbs or the criterion of participant distinguishability contra Haiman's account.

While the current article has been critical of Haiman's account of the contrast between light and heavy reflexive marking, however, it has been no less critical of rival accounts of the phenomenon. In particular, the article has been critical of accounts which assume that the contrast between light and heavy reflexive marking can be explained without any reference to notions of introversion and extroversion. Thus, it has been

argued that Kemmer's (1993) attempt to explain the contrast between light and heavy reflexive marking in terms of participant distinguishability fails both because such a notion is inherently problematic and because it explains only a subset of the instances of light and heavy reflexive marking explained by the distinction between introverted and extroverted sentences. Similarly, it has been argued that accounts which attempt to explain the contrast between light and heavy reflexive marking on the basis of configurational constraints (i.e. Chomsky 1981, 1986), grammatical relations (i.e. Pollard and Sag 1992), or thematic relations (i.e. Wilkins 1988) fail to do so because they are unable to explain the light and heavy reflexive marking of objects of prepositional phrases. Also, however, the present article has been critical of a number of accounts which resemble Haiman's in using the distinction between introverted and extroverted verbs to explain the contrast between light and heavy reflexive marking. Thus, it has been argued that while Reinhart and Reuland's (1993) "reflexivity" theory makes use of the distinction between introverted and extroverted verbs it is nevertheless contradicted by numerous examples of the light and heavy reflexive marking of both objects of verbs and objects of prepositional phrases. Similarly, it has been argued that while the account developed by König and Siemund (2000) is correct to claim that Middle English reflexive marking is influenced by introversion and extroversion, it is lacking insofar as it overlooks the role that the shift in the marking of contrastive emphasis at the beginning of the sixteenth century played in the emergence of the Modern English reflexive pronoun.

As well as emphasizing that extant accounts of the contrast between light and heavy reflexive marking are unsatisfactory, the present article has suggested that further data of four distinct types is required if a satisfactory account of the contrast between light and heavy reflexive marking is to be developed. Firstly, almost all studies of the contrast between light and heavy reflexives have concentrated exclusively on the reflexive marking of objects of verbs. The current article has shown that considering light and heavy marking in a range of other positions can open up significant issues such as whether introversion and extroversion are only properties of the actions denoted by verbs or whether they can be properties of the actions denoted by clauses also. Secondly, diachronic analyses of the contrast between light and heavy reflexive marking are extremely rare and have confined themselves to the analysis of the light and heavy reflexive marking of objects of verbs in English. Clearly, further analysis of the diachronic evolution of light and heavy reflexive marking in languages other than English and in grammatical positions other than the objects of verbs will be required if we are to understand why

languages manifest a distinction between introverted and extroverted sentences. Thirdly, there has been insufficient analysis of cross-linguistic variations in light and heavy reflexive marking. As the current article has emphasized, such analysis is vital because it serves to reveal whether languages embody significantly different or essentially similar notions of introversion and extroversion. Finally, as has been shown repeatedly throughout the current article, there are instances of light and heavy reflexive marking which can only be explained in terms of factors other than the distinction between introverted and extroverted sentences. Clearly, more data of this type is required if we are to gain a clearer sense of what these other factors are and how they interact with the distinction between introverted and extroverted sentences. In sum, then, it has been argued in the present article that a satisfactory account of light and heavy reflexives and the effect that introverted and extroverted sentences have upon them is not currently available. It has also been suggested that such an account could emerge, however, with the development of a significantly richer database. Clearly, it is critical that such an account does emerge for, ultimately, a comprehensive theory of reflexivization will not be possible without it.

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Notes

1. I would like thank Geoffrey Leech for extensive discussions regarding reflexives in English. Thanks also to Francis Katamba and two anonymous reviewers for advice and encouragement. Thanks also to my informants Luzena Braganza, Femke van der Meulen, Luca Onnis, Arthur Pires, Matthew Pires, Carsten Schierenbeck, and Pawel Waskiewicz. Correspondence address: Department of Psychology, University of Warwick, Coventry CV4 7AL, England. E-mail: drmcsmith@hotmail.com.
2. Interestingly, it is possible that Kemmer (1993) systematically underestimates the number of languages which can realize patients either as light or heavy reflexives. Thus Kemmer argues that French fails to discriminate between light and heavy reflexives and uses pronouns such as "se" as both light and heavy reflexives. While this is mostly true, however, there are a number of exceptions. In the following example for instance "lui" and "lui-même" form a pair of reflexives differing in phonological weight thereby corresponding to the English example:

   (i) Pierre$_i$ a honte de lui$_i$/lui$_i$-même.
   'Peter$_i$ is ashamed/of himself$_i$.'

   Similarly, Kemmer argues that German is a one-form system in which the same pronouns are used as both light and heavy reflexives. However, as König and Siemund

(2000) observe, German does mark the difference between sentences featuring introverted and extroverted verbs because while the intensifier "selbst" is common in the latter, it is rare in the former:

(ii) Karl_i bereitet sich_i/??sich_i selbst vor.
'Karl is preparing himself.'
(iii) Karl liebt ?sich/sich selbst am meisten.
'Most of all Karl loves himself.'

3. Thomas Reid (2000 [1785]: 26) has made much the same point: "When I am pained, I cannot say that the pain I feel is one thing, and that my feeling of it is another thing. They are one and the same thing and cannot be disjoined even in the imagination."
4. As well as having greater explanatory power than Haiman's or Kemmer's account in this respect, Reinhart and Reuland's account also has greater explanatory power than Chomsky's (1981, 1986) binding theory. Thus, as has often been noted, the binding theory cannot explain sentences such as (16a) in which a locally bound morphologically simplex reflexive is blocked in an extrinsic reflexivization context (for further discussion of this point and a comprehensive overview of the problems associated with the binding theory cf. Huang 2000, chapter 2).
5. For other criticism of Reinhart and Reuland (1993) cf. Anagnostopoulou and Everaert (1999) and Lidz (1995).
6. Interestingly, Keenan (2002) has demonstrated that there is tremendous individual variation in the Modern English reflexive pronoun. Thus, as he observes, while certain authors from this period were primarily using the reflexive pronoun to express local binding, other authors were not. As Keenan argues, moreover, such variation is highly problematic for "parameter setting" accounts of the emergence of the reflexive pronoun in Modern English.
7. Assessments of the legality of such sentences vary. Thus Haegemann (1994: 231) gives the following example:

(i) They_i saw a snake near them_i/themselves_i.

However, Faltz (1985: 100; cf. also Chomsky 1981: 290) views the sentence "They saw the snake near themselves" as illegal. Similarly, Reinhart and Reuland (1993: 686) give the following example:

(ii) Max_i pulled the cart towards him_i/himself_i.

In contrast, Quirk et al. (1985: 360) give the following example:

(iii) She pushed the cart in front of her/*herself.

It is most likely that such conflicting judgments reflect differing assessments of the relative acceptability of the logophoric and nonlogophoric readings of the sentences (cf. the discussion of example [62]).
8. While the term "pronominal" is commonly used in Chomsky (1981, 1986), the term "personal pronoun" will here be substituted for it for the sake of convenience and consistency.
9. It is often claimed that English complex possessives are sentence-free and thus, unlike anaphors, are not subject to the c-command (example taken from Zribi-Hertz 1995: 364):

(i) Isabel_i was silent [...] Suddenly, she was anxious for them to be installed. Her_i own thesis had been hanging fire for too long: she was receiving enquiries from her tutor.

However, as Pollard and Sag (1992: 268) argue, examples such as the following indicate that such an analysis also applies to the reflexive pronoun "himself":

(ii) John was furious. The picture of himself in the museum had been mutilated.

Thus, while (i) may suggest that "his own" is not subject to the c-command condition it does not suggest that it is dissimilar to the reflexive pronoun "himself" and thus that it should not be regarded as a reflexive.

10. It is, of course, possible to substitute "herself" into (75b):

(i) ?Mary discussed belief in herself.

However, the sentence is somewhat marginal and seems to refer to the belief that other people have in Mary rather than, as in (75a), Mary's belief in herself.

11. An anonymous reviewer has made the intriguing observation that emotion nouns contrast in their ability to support a "self-" reflexive marker, that is, we can say "self-confidence" but not "self-shame." As the reviewer argues, such a contrast may be a further manifestation of the distinction between introversion and extroversion.

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