conclusion that the different sections perform different rhetorical functions and thus require different linguistic resources to realize those functions is provided by Adams Smith, who investigated 'author’s comment' in (amongst other genres) six medical research papers. The relevant part of her figures is given in Table 5 below.

**Table 5. Instances of Author's Comment per RA Section**
(simplified from Adams Smith, 1984)

<table>
<thead>
<tr>
<th>Instances of author’s comment</th>
<th>No. of lines</th>
<th>Comment/line ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>58</td>
<td>1:3</td>
</tr>
<tr>
<td>M and R</td>
<td>18</td>
<td>1:21</td>
</tr>
<tr>
<td>D</td>
<td>202</td>
<td>1:2,2</td>
</tr>
</tbody>
</table>

Again we see a marked contrast between I and D on the one hand, and M and R on the other; in this particular case a difference close to an order of magnitude. According to Adams Smith, the main way in which I- and D-clustered authorial comment is introduced is by modal auxiliaries, of which *may* and then *should* are the most frequent. (In Adams Smith’s sample *can* is rare, although Huddleston (1971) remarks that it is common in physical science papers.) In fact, modality accounted for about half of the instances of comment, the other half being expressed by adverbs and adjectives of ‘probability’ such as *possible, certainly,* and so on (about 15%) and by a wide range of ‘attitudinal markers’ (the remaining 35%) such as adverbs like *surprisingly,* marked choice of noun (*view* v. *hypothesis*), switch to first person, and unusual use of metaphor or analogy. Functionally, by far the most common type of authorial comment in the six RAs in the sample is epistemic, that is, relating to the probability (from 0 to 100%) of a proposition or a hypothesis being true. The three other uses that occurred with any frequency were recom-mending, emphasizing and evaluating.

If we put these preliminary findings together we get an overview as in Figure 8.

The evidence thus suggests a differential distribution of linguistic and rhetorical features across the four standard sections of the research article. By and large, we have seen evidence for a two-way division into ‘simple’ M and R and ‘complex’ I and D — and at this juncture we could bear in mind Knorr-Cetina’s observation that in her case study it was the Introduction and Discussion that were serially redrafted whilst the M and R drafts survived to publication virtually unchanged. The following sections will examine each of the four parts in more detail by considering, *inter alia,* the rationale behind such findings, exceptions to them, and cross-disciplinary variation. This, however, is a suitable point to indicate one or two linguistic and functional features that occur very rarely, if at all, in any section of a RA. Progressive or continuous forms are extremely rare (Barber, 1962; Wingard, 1981). Second person pronoun forms are absent (in contrast to textbooks), except for the occasional imperative verb in comments on non-verbal data or in footnotes. Explicit definitions (again unlike textbooks) are very rare (Darian, 1982; Swales, 1981a).

### 7.4 Introductions

Introductions are known to be troublesome, and nearly all academic writers admit to having more difficulty with getting started on a piece of academic writing than they have with its continuation. The opening paragraphs somehow present the writer with an unnerving wealth of options: decisions have to be made about the amount and type of background knowledge to be included; decisions have to be made about an authoritative versus a sincere stance (Arrington and Rose, 1987); decisions have to be made about the winsomeness of the appeal to the readership; and decisions have to be made about the directness of the
have 'practical utility' and are 'non-invasive'. Unfortunately, this class of story that Neelakantaswamy and Hong tell is not without its rhetorical contribution to the discipline, whilst previously established as completely.

One possible approach is to view RA introductions as encapsulated problem–solution texts. This, for instance, is the position adopted by Zappen (1983) who, following Toulmin (1972), argues that researchers in their writing need continuously to address the context of the intellectual discipline wherein they are located. More specifically ‘the researcher addresses the goals, current capacities, problems, and criteria of evaluation that derive from and operate within that discipline’ (Zappen, 1983:130). As Figure 9 shows, Zappen’s analysis follows this series of sub-contexts: goal in the first paragraph, current capacity (the best we can do at the moment), problem (However, …), solution (In the present work, …) and criteria of evaluation.

While the emphasis on the disciplinary audience in this characterization is both salutary and necessary, and while the five-part rhetorical division is itself plausible, the labeling of those divisions suggests a rather flat and certainly sunny world in which the empiricist repertoire of logic, objectivity and reason strongly predominates. However, if we examine a little more closely the Figure 9 text that Zappen himself chose to illustrate his approach, we can see that this short introduction is firmly embedded within the localized field of the researchers’ previous work. Eight of the nine references cite previous papers by the first author. All but one of the self-citations are positive, the exception being (9), while the solitary outside reference (8) is considered to make a less 'practical' proposal than the authors’ own. The exception to the positive evaluation of their own work lies in Zappen’s Problem section where the authors need both to motivate their present work and to justify its publication by showing that their contribution to the discipline, whilst previously established as significant and reference-worthy, is as yet incomplete. In addition, the story that Neelakantaswamy and Hong tell is not without its rhetorical interest. They open their account with the bold claim that they have developed not a 'number' nor a 'series' but a 'class' of instruments – and one that has been given a class name. These are ‘compact’ and ‘simple’, have ‘practical utility’ and are ‘non-invasive’. Unfortunately, this class of instrument does produce a ‘significant amount of spherical aberrations’, but in the latest version as presented in the current paper ‘the spherical aberration effects are relatively minimized’. (But not eliminated completely.)

Thus, this ‘simple’ and short engineering introduction is rich in evaluative commentary that not only reveals the authors addressing the...
expectations of the discourse community (as the Toulmin-Zappen model suggests) but also addressing the development of their research area particularly as it relates to their own contributions, past, present and future. Although the level of self-citation in the text may be abnormally high, scientist colleagues consistently respond to my queries with comments like 'you cannot avoid citing your previous work in science'. This suggests, amongst other things, that part of the difficulty with fitting a problem-solution schema onto introductions is the fact that 'problems' or research questions or unexplained phenomena are the life-blood of many research undertakings. Adams Smith (1987) cites her informant as follows:

Biomedical research, he said, is not a matter of problem-solving. Rather it is the observation of something interesting that does not seem to fit the pattern, followed by the observation of this phenomenon over a period of time, and the recording and explanation of the findings. It is common for a piece of research to answer the question it has set out to clarify while at the same time it raises other questions to be accounted for in the course of further investigation.

(Adams Smith, 1987:19-20)

Perhaps it is not therefore surprising that Adams Smith (1987) found that the medical RAs she examined either failed to contain a recognizable problem or tended not to foreground it. In contrast, the derived popularizations emphasized problem or controversy, partly by placing the issue early (presumably for reasons of 'newsworthiness' discussed in the previous section).

My earliest attempt to offer an alternative sui generis model to account for the rhetorical movement in article introductions was Swales, 1981b. Although the '4-move' model presented in that monograph has had some little influence (sometimes more than I would wish), certain defects have become increasingly apparent. Several analysts (Lopez, 1982; Bley-Vroman and Selinker, 1984; Crookes, 1986a) have commented on the difficulties of separating Move 1 and Move 2. The fact that the original corpus was deliberately restricted to short introductions led to the creation of a separate citational category (Move 2 - Summarizing Previous Research) clearly at odds with the increasing practice of spreading references throughout the introduction (Jacoby, 1986). A further consequence of the corpus choice was neglect of the recycling possibilities in longer introductions. In addition, the range of options in the final two moves was overly restrictive (Jacoby, 1987; Cooper, 1985).

In the revised Create a Research Space (CARS) model (Figure 10) I have taken the ecological analogy rather further than hitherto, because it seems to me that it adequately captures a number of characteristics of RA

<table>
<thead>
<tr>
<th>Move 1 Establishing a territory</th>
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<tbody>
<tr>
<td>Step 1 Claiming centrality</td>
</tr>
<tr>
<td>and/or</td>
</tr>
<tr>
<td>Step 2 Making topic generalization(s)</td>
</tr>
<tr>
<td>and/or</td>
</tr>
<tr>
<td>Step 3 Reviewing items of previous research</td>
</tr>
</tbody>
</table>

Declining rhetorical effort

<table>
<thead>
<tr>
<th>Move 2 Establishing a niche</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1A Counter-claiming</td>
</tr>
<tr>
<td>or</td>
</tr>
<tr>
<td>Step 1B Indicating a gap</td>
</tr>
<tr>
<td>or</td>
</tr>
<tr>
<td>Step 1C Question-raising</td>
</tr>
<tr>
<td>or</td>
</tr>
<tr>
<td>Step 1D Continuing a tradition</td>
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</tbody>
</table>

Weakening knowledge claims

<table>
<thead>
<tr>
<th>Move 3 Occupying the niche</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1A Outlining purposes</td>
</tr>
<tr>
<td>or</td>
</tr>
<tr>
<td>Step 1B Announcing present research</td>
</tr>
<tr>
<td>Step 2 Announcing principal findings</td>
</tr>
<tr>
<td>Step 3 Indicating RA structure</td>
</tr>
</tbody>
</table>

Increasing explicitness

Figure 10 A CARS model for article introductions
introductions: the need to re-establish in the eyes of the discourse community the significance of the research field itself; the need to 'situate' the actual research in terms of that significance; and the need to show how this niche in the wider ecosystem will be occupied and defended. It follows that the amount of rhetorical work needed to create such a space depends on the existing ecological competition, on the size and importance of the niche to be established, and on various other factors such as the writer's reputation.

If we apply this model to the Zappen text (Figure 9) we can see that Move 1 is coterminous with goal and current capacity, Move 2 with problem and Move 3 with solution of criteria of evaluation. We would ascribe Move 1 as containing only a Step 3 because there are no opening generalizations of a type to be discussed shortly. However, the Step 3 (literature items 1–8) is, as we have already seen, quite marked by upbeat expressions of significance and relevance, presumably because of the self-citational nature of the review. The single sentence Move 2 can be identified as a Step 1B (indicating a gap). A possible alternative would be to take Move 2 as a Step 1D (continuing a tradition) but the use of the adversative however suggests otherwise.

The four options for Move 2 can be illustrated as with the following versions of the Figure 9 text:

Step 1A (Counter-claim) However, the use of ... results in such a degree of spherical aberration that radical design changes have become necessary.

Step 1B (Gap) However, the use of ... results in a significant amount of spherical aberrations ...

Step 1C (Question) However, it is not clear whether the use of ... can be modified to reduce spherical aberration to acceptable levels.

Step 1D (Continuation) The remaining issue is to find a way of better controlling spherical aberration.

Finally, we can assign the third paragraph to Move 3, the first sentence being Step 1B, and the final two being Step 2.

Figure 11 offers a sample Move-Step analysis of a slightly longer, 14-sentence introduction, but again from the hard sciences area. Both the text itself and the issues it raises provide rich terrain for the genre analyst and are quite intriguing. In the first place, the establishment of territory in Move 1 utilizes all three step options, again suggesting that we would be unwise to come to any swift conclusion that science and engineering RA introductions tend to avoid (or do not need) the more rhetorical options. In fact, the opening two sentences represent a prototypical instance of both the 'narrowing' effect and of what I have called claiming centrality:

I am grateful to Changyu Yang for bringing this text to my attention.
The increasing interest in ... has heightened the need for ...

Of particular interest and complexity are ...

Centrality claims are appeals to the discourse community whereby members are asked to accept that the research about to be reported is part of a lively, significant or well-established research area. Some typical examples of the linguistic exponents – and signals – of centrality claims are given below in abbreviated form. In all these cases, and in subsequent ones, the examples have been taken from actual RA texts, unless indicated otherwise.

Recently, there has been a spate of interest in how to ...

In recent years, applied researchers have become increasingly interested in ...

The possibility ... has generated interest in ...

Recently, there has been wide interest in ...

The time development ... is a classic problem in fluid mechanics.

The explication of the relationship between ... is a classic problem of ...

The well-known ... phenomena ... have been favorite topics for analysis both in ...

Knowledge of ... has a great importance for ...

The study of ... has become an important aspect of ...

The theory that ... has led to the hope that ...

The effect of ... has been studied extensively in recent years.

Many investigators have recently turned to ...

The relationship between ... has been studied by many authors.

A central issue in ... is the validity of ...

As the above list indicates, authors of a RA can make a centrality claim at the introduction's outset in a number of ways. They can claim interest, or importance; they can refer to the classic, favorite or central character of the issue; or they can claim that there are many other investigators active in the area. In the two corpora that I have examined in detail (Swales, 1981b; Swales and Najjar, 1987) the exercise of the Step 1 option was comparatively common, averaging a little under 50% for the combined sample of 158 introductions. It also seems quite widely distributed across various disciplinary areas, although exercised somewhat less in the physical sciences. Possible rationales for utilizing or avoiding a centrality claim remain an unexplored but interesting research area. Among the variables that might turn out to be relevant are the disciplinary area itself; some felt sense of the expectations of particular journals; the nature of the research itself (as when authors might want to enhance with centrality claims a particular piece of research or scholarship that others might conceive of as marginal); or individual rhetorical predispositions for or against marked rhetorical activity of this type.

Centrality claims are typically communicated in a single sentence, but can, as Figure 11 shows, extend over two or more sentences. They are also typically, but not inevitably, introduction initial. In the following case, for instance, Steps 1 and 2 have been reversed:

S1 An elaborate system of marking social distance and respect is found in the morphology of Nahautl as spoken in communities of the Malinche volcano area in the Mexican States of Tlaxcala and Puebla. (Step 2)

S2 The complexity of the morphology involved, the semantic range of the elements, and variation in the system of use raise questions of considerable interest for our understanding of the form and function of such systems, both in Nahautl itself and in other languages. (Step 1, my emphases)


This introduction opens with a topic generalization of a Step 2 type, and as such does little to appeal to any but those with a specialized interest in Mexican languages. The 'repair', if one is needed, immediately follows, for the elements that I have italicized make a strong claim that the about-to-be-described findings are of central interest to sociolinguists of whatever areal specialty. It would doubtless have been possible to reverse the order in some way, or to have incorporated the substance of S1 into S2, although at the probable cost of increased syntactic complexity. My reading of the introduction as a whole suggests that the unusual order may be relatable to the authors' concern to establish early that their study was based on very extensive field work. This would explain the early circumscription to 'as spoken in communities of the Malinche volcano area', which in turn would explain the difficulty of initiating the introduction with Step 1.

The more general point raised by this particular text is that there are good general and applied reasons for assigning numerical sequence to textual elements that occur in suitably robust preferred orders. In the case of RA introductions the three moves occur at a high frequency in their assigned order. Swales and Najjar (1987) found, for instance, only 10 out of 110 introductions beginning with a Move 3. An anomaly percentage of under 10% is well within acceptable bounds in discoursal and textual studies for, even more than syntax, discourse is a phenomenon of propensities. Discourse generalizations are permeable to exceptions, and are not consequently falsified by limited numbers of counter-instances. Further, the occasional recurrence of minor dispreferred structures is
itself a phenomenon of interest both intrinsically and in terms of what it may reveal about the rationale behind the major preferred ones.

Step 2 has been labeled as making a topic generalization and represents a more neutral kind of general statement than Step 1. Step 2s can take a variety of forms, but generally fall into two categories: statements about knowledge or practice, or statements about phenomena. Representative authentic but abbreviated examples of the first group are:

*The aetiology and pathology of ..., is well known.*

*There is now much evidence to support the hypothesis that ...,*

*The ..., properties of ..., are still not completely understood.*

*A standard procedure for assessing ..., has been.*

Education core courses are often criticized for ...

Typically, these Step 2s express in general terms the current state of the art — of knowledge, of technique, or as in the case of the Figure 11 text, of current requirements for further progress. The second group of topic generalizations refers to phenomena, such as:

*... is a common finding in patients with ...*

*An elaborate system of ..., is found in the ...*

*English is rich in related words exhibiting ‘stress shifts’.*

There are many situations where ...

As these examples indicate, there is a strong tendency for phenomena topic generalizations in particular to establish territory by emphasizing the frequency and complexity of the data — indeed I suspect that if territory cannot be easily established in this way a Step 2 of this type would be dispreferred. Consider these alternates:

a1) *English is rich in related words exhibiting ‘stress shifts’.*

a2) *English is poor in related words exhibiting ‘stress shifts’.*

b1) *There are many situations where examination scripts are marked and then re-marked by another examiner.*

b2) *There are few situations where ...*

In the case of (a2) the bald announcement of the relative absence of the phenomenon would seem, *prima facie*, to surrender territory; we would therefore be more inclined to expect that the author would attempt to regain ground with something like:

a3) *English is surprisingly poor in related words ...*

for we can now expect some interesting account of the reasons for the impoverished phenomenon. The (b) example, which is discussed in detail in Swales (1987b), is the opening sentence from an experiment in exam re-marking. In that context, it would make little rhetorical sense to imply (by using ‘few’) that the phenomenon under investigation is of marginal status. On the other hand, territory might be established via the insertion of a couple of small words that carry implications of being ‘state of the art’:

b3) *There are as yet few situations where ...*

The author may then be in a position to advance a knowledge claim that the innovation is provisionally promising.

Indeed, we see the precise mirror-image of the frequency requirement in studies that purport to be case reports. Here is a skeletalized version of an introduction in a medical journal:

*S1 Primary malignant ..., lymphomas of ... are very rare.*

*S2 In the Department of ..., this diagnosis has been made in only ten patients during the last fifty years.*

*S3 Retrospective analysis showed that one of these cases showed a very uncommon ...*

*S4 A review of the recent literature yielded only two reports of ...: both of these reports paid little attention to clinical details.*

*S5 L ..., reported fourteen cases, ... but in this report, too, clinical data are not given.*

*S6 In the present report we shall describe the chemical ... findings in a case of ... lymphoma ... with an uncommon clinical course.*

It is often believed that straightforward research reports begin with a straightforward thesis statement or statement of purpose. While it might have been possible for the authors of this article to have so begun by opening with S6, study of the above text shows clearly enough why they chose to establish both a territory and a niche before S6. Most obviously, given the fact that they had one case to report — and presumably one dug out of the archives at that — they were under some rhetorical pressure to establish its rarity and possibly near uniqueness. After all, the chances of being able to publish in a RA (as opposed to a textbook) a description of a single standard case of a standard disease are likely to be very slim. Hence, we are not surprised to find the authors’ endeavoring to establish in the first three sentences the rarity of the phenomenon in their own medical institution, and then to go on to note that the mere 16 cases found in the literature lack clinical details. The complex establishment of the first five sentences thus prepares the discourse community to accept that there is indeed a niche being occupied in the introduction’s final sentence.
The third step in establishing a territory is the review of one or more items deemed by the authors to be relevant to that establishment. Apart from at least one exceptional disciplinary area, minimal reference to previous work is the obligatory step in Move 1, while the other steps, from a corpus perspective, are discretionary. One exception to a strong literature-citation requirement was discovered by Cooper (1985) in her study of IEEE publications dealing with advances in computer technology. Four of her 15 introductions did not contain a Step 3, and she suggests that there may be a number of special circumstances that account for the light referencing: the fact that the field is relatively new and has little accumulated research tradition; and the fact that there is heavy commercial involvement in the field; and the fact that work tends to be product-related rather than concerned with hypotheses per se. Cooper's findings are interesting because they suggest that evolving discourse communities on the periphery of the academic world may be developing alternative conventions for their central genres.

The Step 3 is one of the main occasions where the RA author needs to relate what has been found (or claimed) with who has found it (or claimed it). More precisely, the author needs to provide a specification (in varying degrees of detail) of previous findings, an attribution to the research workers who published those results, and a stance towards the findings themselves. My earlier attempts (e.g. Swales, 1981b) to provide a useful account of the attribution variables — and their typical tense correlates — have not fully withstood the test of critical commentary (particularly by Jacoby, 1987) and I now offer a modified position. The basic distinction I would wish to make is between integral and non-integral forms of citation. The distinction has the merit of being easily applicable because it depends merely on recognizing surface features of text. An integral citation is one in which the name of the researcher occurs in the actual citing sentence as some sentence-element; in a non-integral citation, the researcher occurs either in parenthesis or is referred to elsewhere by a superscript number or via some other device. The main patterns are illustrated with constructed examples in Figure 12.

The integral citations show the name of the researcher as subject (Ia), passive agent (Ib), as part of a possessive noun phrase (Ic and Id) and as what Tadros (1985) calls 'an adjunct of reporting' (Ie). The non-integral citations show three parenthetical citations and two superscripted ones. In Figure 12 the citations all in fact occur at sentence-final position, but scrutiny of technical RA introductions will reveal instances of other placements, especially when groups of researchers and related topics are introduced (as in sentence 4 of the Figure 11 text). The final type of non-integral citation listed in Figure 12 (Nf) was, to my knowledge, first discussed in the discourse analysis literature on RAs by Jacoby (1986).

<table>
<thead>
<tr>
<th>Integral</th>
<th>Non-integral</th>
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</thead>
<tbody>
<tr>
<td>la Brie (1988) showed that the moon is made of cheese.</td>
<td>Na Previous research has shown that the moon is made of cheese.</td>
</tr>
<tr>
<td>lb The moon's cheesy composition was established by Brie (1988).</td>
<td>Nb It has been shown that the moon is made of cheese.</td>
</tr>
<tr>
<td>lc Brie's theory (1988) claims that the moon is made of cheese.</td>
<td>Nc It has been established that the moon is made of cheese.</td>
</tr>
<tr>
<td>Id Brie's (1988) theory of lunar composition has general support.</td>
<td>Nd The moon is probably made of cheese.</td>
</tr>
<tr>
<td>le According to Brie (1988), the moon is made of cheese.</td>
<td>Ne The moon may be made of cheese.</td>
</tr>
<tr>
<td>Nf The moon may be made of cheese (but cf. Rock, 1989).</td>
<td></td>
</tr>
</tbody>
</table>

Figure 12 Integral and non-integral citation

She labeled such references as 'contrastive' because they go against the drift of the conclusions being reached in the sentence itself. Contrastive references seem very unevenly distributed in academic writing. They are, for example, very uncommon in the scientific areas, but quite common in scholarly legal commentary. In the humanities, they seem to form part of some academics' writing style, but rarely, if ever, occur in the writings of others. Of Jacoby's six texts dealing variously with literary research, only two made much use of contrastive references but these two texts employed them quite consistently. They are worth further study.
Jacoby (1987:55) also proposes a category of reference which she calls summary: 'In these references no particular research predecessor is named, as a rule, but clear reference to the state of previous research as a whole or to the state of consensus knowledge can be identified'. I have not adopted this particular proposal. In cases where no previous researchers are specifically cited, I see no reason not to assign the text to Step 2 (topic generalization). In cases where specific previous researchers are cited, text elements can usually be assigned to one of the categories illustrated in Figure 12. As Jacoby implies, the problematic cases occur when the writer refers to groups or 'schools' of researchers and scholars. Compare the following:

a) Generative grammarians have recently modified their position.

b) Generative grammarians influenced by Chomsky have recently ...

c) Chomskyan grammarians have recently ...

d) Chomsky and his co-workers have recently ...

Even in the case of (d) the most workable assignment procedure would seem to be one that asks whether there is an actual citation or not. If there is, as in:

e) Chomsky and his co-workers (e.g. Napoli, 1988) have recently ...

then it falls under one of the Figure 12 categories (i.e. Nd). If there is none, as in (d), then it is not a citation.

The final column in Figure 12 is labeled +R or −R. The +R citations are reporting; that is to say the RA author employs a 'reporting' verb (show, establish, claim, etc.) to introduce previous researchers and their findings. In the lower sections of the figure, the citations are non-reporting (−R). The dichotomous classification works fairly well except for uncertainties that can arise with a small set of verbs, particularly find and be associated with. For example, we can give two possible readings to the sentence: 'X was found to be impaired' (Sang et al. 1972). We could read this as reporting:

a1) X was found by Sang et al. (1972) to be impaired.

a2) Sang et al. (1972) found that X was impaired.

Alternatively we could read it as non-reporting:

b1) X was impaired (Sang et al., 1972).

b2) Impairment of X occurred (Sang et al., 1972).

This existential reading has affinities with such common uses of find in the passive as: 'Coal is found in the ground' (i.e. coal occurs in the ground).

As we have already seen, Bazerman (1984a) noted a firm trend from reporting to non-reporting citations in the Physical Review during this century. However, this trend may be partly due to the fact that the Physical Review uses a numerical/superscript system. Such systems do not easily permit integral reporting choices:

? Reference 3 established that the moon was made of cheese.

In 16 biological and medical RAs from the 1970s, I found that the non-reporting/reporting ratio was only 40–60 (Swales, 1981b) whereas Jacoby (1987) found a 25–75 ratio among her literary critics. The survival of both integral and non-integral reporting structures can fairly clearly be attributed to their considerable discriminatory power. In the first place, the repertoire of reporting verbs that an author can draw on is quite large (around 50 possible candidates) ranging from highly frequent choices such as suggest, report and show to rarities like asseverate. Secondly, this class can be broadly divided into two main groups; those whose use asserts the author's commitment to the attendant proposition (show, demonstrate, establish, etc.) and those whose use carries no such commitment (suggest, propose, examine, etc.). The distinction is a powerful rhetorical tool in authors' attempts to create research spaces for themselves, because it allows them to signal early whether claims are to be taken as substantiated or not. Thirdly, the incorporation of a reporting verb concomitantly involves a choice of tense, the selection of which may be highly indicative.

In fact, EAP studies of references to previous research have tended to focus on providing an account of tense and aspect usage (Lackstrom et al., 1972; Swales, 1981b; Oster, 1981; Ard, 1982, 1985; Een, 1982; Trimble and Trimble, 1982; Malcolm, 1987). These studies have examined in particular the use of the three forms, the Past, the Present Perfect and the Present Simple, that together realize over 90% of all finite verb usages in citational statements. There are, I believe, three broad kinds of response to the issue of tense usage in this literature. One is to say that the 'general rules' are largely adequate (Ard, 1982 and 1985; Malcolm, 1987). A second approach, best illustrated by Oster (1981), proposes a special set of explanations of tense/aspect that are closely associated with the nature of the claims being made about the previous literature. The third approach (Swales, 1981b; Een, 1982) has argued that the use of tense/aspect in referenced statements is best explained in terms of where and how the reference to the previous researcher is introduced into those statements.

We might begin with the commonly-made observation that the 'general rules' for the Past, Present and Present Perfect seem to be less powerful in expository texts than in narrative ones, this being presumably due to the fact that time-lines and time-sequences, which are
important elements in the traditional explanations, are more prominent in narratives. Thus in a story the following three statements might easily be explained in terms of 'general rules':

A disagreed with B.
A has disagreed with B.
A disagrees with B.

However, in the context of a report on an academic debate with, say, A being Halliday and B Chomsky, we can see, as Lackstrom et al. (1972) have observed, that the three statements are typically interpreted not in terms of increasing present-ness or increasing relevance to the present, but in terms of increasing generality. It is the perceived role of such concepts as generality and relevance that has led to the second approach, which so far has reached its fullest published form in Oster (1981). She proposes the following principal hypotheses:

i) The Present Perfect tense is used to claim generality about past literature. The Past tense is used to claim non-generality about past literature.

ii) The Past tense is used when it refers to quantitative results of past literature that are non-supportive of some aspects of the work described in the technical article. The Present tense is used when it refers to quantitative results of past literature that are supportive or non-relevant.

iii) The Present Perfect tense is used to indicate the continued discussion of some of the information in the sentence in which the Present Perfect tense occurs.

(Oster, 1981:77)

Although Oster’s sample is small (two articles from chemical engineering), she is able to show that the above hypotheses apply quite well to her texts. The first hypothesis, of course, fits well with general accounts – and we have already seen many instances of the Present Perfect in broad centrality claims and topic generalizations. Of the other two hypotheses, the third is the more interesting because it provides a discoursal rather than a semantic/sentential explanation via its suggestion that the Present Perfect can operate as a signal to the reader to expect further discussion of the topic. In Swales (1981b) I attempted to validate this claim in 16 biological and medical papers, but without much direct success. However, I did find several instances of a corollary to Oster’s hypothesis: the Past tense following a Present Perfect (or series of Present Perfects) in a discussion of a particular piece of research is apparently used to indicate that this discussion is terminating.

The more general difficulty of an account such as Oster’s, particularly from a pedagogical point of view, is that of deciding what is going to

<table>
<thead>
<tr>
<th>Reference and tense</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Integral</strong></td>
</tr>
<tr>
<td>reporting</td>
</tr>
<tr>
<td>Brie (1988) showed</td>
</tr>
<tr>
<td>non-reporting</td>
</tr>
</tbody>
</table>

Figure 13 Reference and tense

This account matches tense with an easily identifiable structural feature and thus offers a serviceable ‘rule of thumb’ to non-native writers. However, it only exhibits statistical tendencies: Een (1982) in a follow-up study of geotechnical texts found confirmation as far as non-reporting and non-integral reporting citations were concerned, but in integral reporting citations in introductions the occurrence of the Past fell to 50%.

Malcolm (1987) adopts the usefully eclectic position that there is need for both ‘general’ rules (as outlined by Celce-Murcia and Larsen-Freeman, 1983; Comrie, 1985; etc.) and ‘special’ ones. She proposes, for instance, that ‘an adequate theory of tense usage in EST discourse needs to account not only for obligatory constraints on tense usage, but also for strategic choices that provide authors with the capability of manipulating temporal references for their own rhetorical purposes’ (1987:32). Although Malcolm, unlike Swales, starts from a generalist perspective, her findings on the use of tense in citational text – based on the Journal of Pediatrics – turn out to be comparable. She puts forward three hypotheses:

1. Generalizations (as indicated by verbs without researcher agents) will tend to be in the Present tense. (Found to be 74% true in her sample.)
2. References to specific experiments (as indicated by a researcher agent and a footnote to a single study) will tend to be in the Past tense. (Found to be 61% true in her sample.)
3. References to areas of inquiry (as indicated by agents and/or foot-
notes to more than one study) will tend to be in the Present Perfect tense. (Found to be 74% true in her sample.)

As Een (1982) also found, the greatest variability occurred in the data for hypothesis 2. This is not surprising because commentary on a single paper is a key location for strategic tense choice:

a) Malcolm pointed out that there is both constraint and choice in tense usage.

b) Malcolm has pointed out that...

c) Malcolm points out that...

Ard (1985) correctly warns us – note use of tense! – against attempting to determine a rationale for such choices in specific instances, but I believe most readers would see the progression from (a) to (c) as being one of some kind of increasing proximity. The reasons for an author choosing the more remote (a) form may (or may not be) complex: choice could relate to placing the cited author’s work in a chiefly historical context; it could emphasize concern with text rather than content; it could de-emphasize relevance to present concerns; or it could prepare the way for critical discussion. Whatever the reasons, the tense choice may indicate something of the author’s stance towards the cited work, and it is probably this facility, allied to a rich choice of lexical verbs, that continues to make reporting structures attractive to RA authors.

We can now consider in a little further detail Move 2 of the CARS model (Figure 10). We can begin with the introduction illustrated in Figure 11, for this provides an elaborate example of the rhetorical work undertaken to establish a niche for about-to-be-presented research. The key signals are repeated in skeletal form below:

S8 However, the previously mentioned methods suffer from some limitations.

S9 The first group ... cannot treat ... and is limited to ...

S10 The second group ... is time consuming and therefore expensive, and its ... is not sufficiently accurate.

S11 Both ... suffer from the dependency on ...

S12 The ... method (upon which the present study is based) eliminates many of these limitations by ..., but it can treat only ...

As we can see, the move opens with an adversative sentence-connector. Across various samples of RA introductions, about a quarter of Move 2s are initiated with such signals, most commonly however but also nevertheless, yet, unfortunately and but. The type of Move 2 is clearly 1B—that of indicating a gap. The author does not counter-claim that the previous work is hopelessly misguided, but rather ‘suffers from some limitations’. Most of the gaps are signaled lexically in the verb (suffer; is limited to) or in adjective phrases (time consuming; expensive; not sufficiently accurate). There is also a case of verb negation in S9 (cannot treat).

In fact, the linguistic exponents of establishing a niche are extremely interesting and have not yet received the attention they deserve either from a general or an applied perspective. In a ‘quick and dirty’ survey of 100 Move 2 instances drawn from a range of fields (physics, geology, psychology and composition) the means of niche-establishment broke down into the following categories, which are listed in order of decreasing frequency.

a) Negative or quasi-negative quantifiers (28 instances)

<table>
<thead>
<tr>
<th>Term</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>12</td>
</tr>
<tr>
<td>little</td>
<td>7</td>
</tr>
<tr>
<td>none (of)</td>
<td>4</td>
</tr>
<tr>
<td>few / very few</td>
<td>4</td>
</tr>
<tr>
<td>neither ... nor</td>
<td>1</td>
</tr>
</tbody>
</table>

Interestingly, these quantifiers either occurred sentence-initially (or following an adversative), or were merely preceded by existential there, as in: ‘However, there is little research that ...’. It is quite possible, therefore, that the somewhat preferred choice of the negative quantifier format may be connected, at some level of consciousness, with a wish to signal early that a niche is now being established.

The other common exponent employs lexical negation or quasi-negation.

b) Lexical negation (26 instances)

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbs</td>
<td>15</td>
<td>(fail 5, lack 2, overlook 2, plus 6 single instances)</td>
</tr>
<tr>
<td>Adjectives</td>
<td>7</td>
<td>(inconclusive, complex, misleading, elusive, scarce, limited, questionable)</td>
</tr>
<tr>
<td>Nouns</td>
<td>3</td>
<td>(failure 2, limitation)</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>(without regard for)</td>
</tr>
</tbody>
</table>

The subtlety of the verbal repertoire available at this juncture is probably connected with the frequency of its adoption. The RA author may opt for a trenchant fail, imply oversight with neglect, overlook or underestimate, suggest complacency with be content to, impute a certain narrowness of vision with concentrate on, be restricted to or be limited to, or offer rather more sympathetic understanding with constrain.

c) Negation in the verb phrase (16 instances)

<table>
<thead>
<tr>
<th>Term</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>not</td>
<td>14</td>
</tr>
<tr>
<td>rarely</td>
<td>1</td>
</tr>
<tr>
<td>ill</td>
<td>1</td>
</tr>
</tbody>
</table>
The relative infrequency of this type of exponent, at least compared to so-called ‘general English’, might suggest that it is somewhat contra-indicated when referring to the work of others. It is possible that the use of not in conjunction with many verbs is seen as providing a potentially hostile depiction of previous work. Indeed, this possibility is strengthened when we note that as many as five of the 16 instances employed we as the subject as in ‘We do not yet know ...’. The inclusive we obviously includes the present authors as co-members of the unsuccessful group.

The remaining minor ways of establishing a niche can be listed together.

d) Questions (8 instances)
   Direct  6
   Indirect 2 (e.g. ‘A question remains whether ...’)

e) Expressed needs/desires/interests (8 instances)
   e.g. ‘The differences need to be analyzed ...’
   ‘It is desirable to perform test calculations ...’
   ‘It is of interest to compare ...’

f) Logical conclusions (6 instances)
   Must 3 (e.g. ‘This must represent ...’)
   Seem/appear 2
   ‘One would intuitively expect ...’

g) Contrastive comment (6 instances)
   ‘The research has tended to focus on ..., rather than ...’
   ‘They center mainly on ..., rather than on ...’
   ‘Studies most often contrast ..., rather than ...’
   ‘Researchers have focused primarily on ..., as opposed to ...’
   ‘Emphasis has been on ..., with scant attention given to ...’
   ‘Although considerable research has been done on ..., much less is known as to ...’

h) Problem-raising (2 instances)
   ‘The application presents a problem ...’
   ‘A key problem in many ... is ...’

An (e) or (f) format seems to be chosen when there is a weaker challenge to the previous research, as we most typically find in a continuing a tradition Step 1D. Clear evidence of this is the quite frequent co-occurrence of the sentence connector therefore (rather than however) in these contexts. Formats (e) and (f) were much commoner in physics and, to a lesser extent, in geology than in psychology or composition. On the other hand, most of the instances of what I have called contrastive comment (g) occurred in composition research. The milder tone of the (g) examples may be connected to the fact that composition researchers comprise a relatively small and mutually supportive discourse community and one not without its external antagonists and detractors.

The underlying theme that has linked this discussion of the RA introduction has been a felt sense that the typical introduction is a crafted rhetorical artifact. At the published textual level, the introduction is a manifestation of rhetorical maneuver. The extent of this rhetorical work can often be seen when we compare expert and non-expert products. The text presented in Figure 14 was written by a Japanese masters student as an exercise in writing research introductions for one of my courses (Swales, 1990).

(1) The 55 mph National Maximum Speed Limit on highways was decided and became effective after the historic Arab oil embargo in 1974. (2) Though it was originally a temporary measure to conserve energy the government decided to make it permanent because of its great contribution to highway safety. (3) In 1984, after a decade had passed, the Transportation Research Board made a research about the 55 mph speed limit, and recommended that the federal government continue the low speed limitations because of its safety benefit.

(4) However, the low maximum speed limit imposes some burdens on drivers and social economy. (5) The additional travelling time caused by the lower speed limit increases costs of freight transportation, especially in rural states where average length of trips is longer.

(6) The purpose of this research is to find out the gross national economic defects of the 55 mph National Maximum Speed Limit on highways.

Figure 14  An NNS introduction

The above text is, I would suggest, a quite effective piece of writing, especially if we bear in mind that the student had had no prior English-medium academic experience and was only two months into a US degree program. Certainly it suffers from few of the orientation problems found in Scarcella (1984) in NNS introductions; there is little unnecessary background information and there is adequate use of attention-getting devices. Although there are occasional ‘off-register’ elements such as made a research about in S3, the text moves smoothly, swiftly and quite authoritatively towards the announcement of the research topic in the final sentence.
However, it remains the case that the introduction remains somewhat flat in the second half. The author seems to have somehow missed an opportunity to highlight the gap between surmise and substantiated opinion, and between present qualitative judgments and potential quantitative ones. We can see this if we compare the original final three sentences with more 'modulated' variants (Latour and Woolgar, 1979).

**S4-original**
However, the low maximum speed limit imposes some burdens on drivers and social economy.

**S4-modulated**
However, it would seem that the low maximum speed limit imposes a certain amount of burden on drivers and the social economy.

**S5-original**
The additional travelling time caused by the lower speed limit increases costs of ...

**S5-modulated**
In particular, the additional travelling time caused by the lower speed limit can be expected to increase costs of ...

**S6-original**
The purpose of this research is to find out the gross national ...

**S6-modulated**
The purpose of this research is to arrive at a preliminary quantitative estimate of the gross national ...

The relatively minor alternatives that I have been proposing take fuller advantage, I believe, of the opportunity to create a research space via more precise specification of the gap and of the attempt to fill it.

The final issue with regard to Move 2 is its cyclicity. A number of investigators (Cooper, 1985; Crookes, 1986a; Hopkins and Dudley-Evans, 1988) have pointed out that niche-establishment does not necessarily occur only at the end of a literature review, but may follow reviews of individual items, so that cycles of Move 1/Step 3 and Move 2 recur. Consider the Figure 11 text for a final time. As we have seen, the author of this text opted for a composite 'chunked' Move 1/Step 3 followed by a composite Move 2. He could have opted instead for a cycling solution to his effort to create a research space (Figure 15).

In our present state of knowledge, it is not possible to do more than speculate about the factors that might predispose authors to choose composite or cycling configurations. It is likely that the length of the introduction plays some part, so that the longer the introduction the greater the probability of some recycling (Crookes, 1986a). It is also likely that choice is influenced by how the research field is perceived. If the relevant research tradition is viewed as linear and cumulative, then a composite arrangement may work well. However, if the field is viewed as branching – consisting of several loosely-connected topics – then a cyclic approach may be preferred. The combination of length and divergence may contribute to the cyclicity more evident in the social sciences, and brevity and linearity to the compositeness more characteristic of the natural and life sciences and of engineering.

We can now turn briefly to Move 3, which I have labeled occupying the niche (Figure 10). The role of Move 3 is to turn the niche established in Move 2 into the research space that justifies the present article. The link between the moves is a strong one. Whenever a Move 2 occurs – and there is a minority of instances in which it does not (Swales, 1981b; Cooper, 1985; Crookes, 1986a) – the ensuing Move 3 variously offers to substantiate the particular counter-claim that has been made, fill the created gap, answer the specific question or continue the rhetorically-established tradition.

The obligatory element in Move 3 is Step 1. This can take one of two predominating forms:

**Step 1A** The author or authors indicate their main purpose or purposes.

**Step 1B** The author or authors describe what they consider to be the main features of their research.

In both cases the opening step is a kind of promissory statement, and in both cases its onset is typically marked by (a) the absence of references to previous research and (b) the use of deictic references to the present text. The more common deictic elements, in approximate decreasing order of frequency, are: this, the present, we, reported, here, now, I and herein. Typical examples culled from RA introductions are:
There are a number of comments that can be made about the language of Move 3s. First, there is a strong tendency for the deictic signal to occur early – as the above examples show – and, in general, the only items that precede them are occasional linking phrases such as 'In view of these observations'. Of the 48 introductions in the 1981 corpus, there was only one in which the deictic in this paper phrase occurred at sentence-final position. However, apprentice writers, both NS and NNS, are more prone to delay the Move 3 signal – and by doing so likely to create uncertainty in the reader. Secondly, there may be an opportunity, depending somewhat on style-sheet instructions, for using either a standard descriptive form or a collapsed structure:

a) In this paper, we argue that ... (standard)

b) This paper argues that ... (collapsed)

Although collapsed structures are quite common, there are little-understood constraints on the co-occurring verb:

This paper utilizes the notion of ...

This paper hopes to show that ...

This paper measures the extent of ...

There is also some evidence that the co-occurrence of inanimate subject and animate verb varies in its acceptability from one language to another. Kojima and Kojima (1978), for example, argue that it is dispreferred in Japanese and concomitantly produce evidence that Japanese scientists tend to avoid collapsed structures when they write in English.

A third observation concerns tense in purposive Step Is. In cases where the deictic refers to the genre (paper, report, note, review, etc.) tense is restricted to the present. However, in cases where the deictic refers to the type of inquiry (investigation, study, experiment, etc.), authors may choose between present and past:

The purpose of this investigation is to ...

The purpose of this investigation was to ...

Cooper (1985) found a Step 3 in as many as 10 out of her 15 IEEE introductions and was further able to report that specialist informants in the computer technology field both expected and welcomed such indications of organization. In most other fields, the percentage of introductions closing with Step 3 seems to be much lower. The high incidence in Cooper's study may well be connected to the absence of an established schema for research reporting in a new and rapidly evolving field.

In this section I have made some fairly bold claims about the rhetorical organization of RA introductions across a range of fields. The most obvious way of validating these claims is to test them out on new data. To this end, I have examined how well the model fits with the RAs in the latest journal I received at the time of writing. That journal was Research in the Teaching of English for February 1988, RTE also incidentally covering a disciplinary area (composition research) little studied in the literature on introductions. The February 1988 issue contains four research articles, the first exceptionally long, the other three of normal length. The basic 'facts' about the four introductions are given in Table 6.

The introduction to the long 35-page opening article (Berkenkotter et al.) follows closely both the Move–Step sequences and the linguistic signals that previous research tells us to expect.
As we might expect in an introduction of around 70 lines, a considerable amount of cycling occurs, especially with regard to gap-indications. There are, in fact, four instances of a Move 2 segment in the first four paragraphs; these are of increasing specificity and it is the final one that specifically establishes the niche that Berkenkotter et al. are attempting to fill. And I take it as serendipitous that the metaphor they choose is the geographic one of ‘unexplored territory’! The final paragraph is given over to Move 3; it contains the only first person pronominal form in the entire introduction and concludes with a general comment about the main findings.

The second introduction poses rather more of a problem for the CARS model, but, as I shall hope to show, for rather interesting reasons. The Slater et al. introduction can be outlined as follows:

### RA 2. OUTLINE STRUCTURE

<table>
<thead>
<tr>
<th>Move–Step</th>
<th>Signals (my emphases)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Para. 1</td>
<td>1–2 (S1) <strong>Recently</strong>, the relationships between ... have been explored by scholars from a number of disciplines.</td>
</tr>
<tr>
<td>Para. 2</td>
<td>2–1B (S1) However, the precise nature of ... has not been delineated.</td>
</tr>
<tr>
<td>Paras 3–8</td>
<td>1–3 (S2) a considerable amount of research has been ... but little research ...</td>
</tr>
<tr>
<td>Para. 9</td>
<td>1–2 (S1) Taken together, these studies indicate ...</td>
</tr>
<tr>
<td>Paras 10–12</td>
<td>1–3 (S2) The purposes of the present study were two-fold:</td>
</tr>
<tr>
<td>Para. 13</td>
<td>3–1A (S1) The study thus extends the findings of previous work by examining ...</td>
</tr>
</tbody>
</table>

After an opening broad paragraph, the introduction proceeds (with one exception) to review previous research until it reaches the final paragraph, the review typically consisting of a series of paired statements like ‘X examined the effects of ... Results indicated that ...’. The main exception is the second paragraph, which is a highly elaborate Move 2 designed to establish that ‘no comprehensive theory’ exists. The outline shows that there are no further closing-in Move 2s, especially immediately prior to the onset of Move 3 – unlike in the first introduction. A close reading of the text brings out the unusual character of this
introduction. The 'no comprehensive theory' argument turns out not to be establishing a niche to be filled, because the authors in fact never return to the issue of the need to start moving towards such a theory, nor do they ever claim that their present paper can be seen as making a contribution to theory. Rather, the second paragraph seems to be designed to justify the fact that it is appropriate in the circumstances to add a small further piece of empirical evidence to the puzzle. In other words, what we seem to have here is a new sub-type of Move 2–Step 1B which, by claiming that the gap is currently unfillable, obliquely establishes a continuing-a-tradition research space. This reading also brings the final sentence into focus, which was left unassigned in the outline. At first sight, the sentence looks as though it might be operating as an atypically-placed Move 2–Step 1D (finding extension). However, we can now see it as a typically closing Move 3–Step 1B for it announces the (limited) status of the present research.

Analysis of this kind will, on occasion, bring to light ambiguity and rhetorical uncertainty. If the above analysis is on the right lines, then it seems definitely odd that the authors did not take up the implication of their second paragraph in any of the ensuing 11. Indeed, one might even suggest that the introduction would have been tidier and easier to process if they had done so. Here is what might have been:

Para. 13 The preceding review suggests that further empirical research is necessary before a comprehensive theory can be developed. In order to develop the research base, the present study was designed with the following two purposes in mind: ... The study thus extends the findings...

The third introduction (Cordeiro) is the shortest and has the following anomalous structure:

<table>
<thead>
<tr>
<th>Move–Step</th>
<th>Signals (my emphases)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Para. 1</td>
<td>3–1B (S1)</td>
</tr>
<tr>
<td></td>
<td>3–1B (S2)</td>
</tr>
<tr>
<td></td>
<td>1–3 (S3–6)</td>
</tr>
<tr>
<td></td>
<td>3–1B (S7)</td>
</tr>
<tr>
<td>Para. 2</td>
<td>1–3</td>
</tr>
<tr>
<td>Para. 3</td>
<td>1–3</td>
</tr>
<tr>
<td>Para. 4</td>
<td>1–3 (S1–4)</td>
</tr>
<tr>
<td></td>
<td>2–1B (S5)</td>
</tr>
</tbody>
</table>

As the outline shows, this introduction opens with a Move 3. Although this option is certainly possible, it does not seem as generally common as many might suppose. It occurred, for example, just 10 times in a corpus of 110 introductions (Swales and Najjar, 1987), and on several occasions already in this section I have alluded to both the likely concerns to create a research space, and the perils of failing to engage the wider discourse community by too narrowly focused an opening. Something of this peril can be imagined by considering the opening sentence in full: 'This study of the writing of 22 first graders and 13 third graders is concerned with how children learn the rules of punctuation' (1988:62). The readers of this sentence are immediately faced by specifics which, while strongly appealing to a few, are likely to disengage many with no direct interest in this research topic. Apart from the promotion of Move 3, the introduction largely follows the model; for instance, it closes with the Move 2, which seems typical of the relatively few introductions of this type that have been examined.

There are, in fact, a number of interesting research questions related to introductions that begin with a Move 3. Are they processed and composed differently? Can they be associated with less experienced writers, or with those who feel, for whatever reason, less need to establish a territory? Are they more likely to occur in situations where the RA documents an experiment to test ...? And if so, are they consequently on the increase?

The final introduction (Roen and Willey) is almost as long as the second but has in fact almost no cycling. The first seven of the nine paragraphs establish the territory. The final two paragraphs have the following structure:

<table>
<thead>
<tr>
<th>Move–Step</th>
<th>Signals (my emphases)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Para. 8</td>
<td>2–1B (S1)</td>
</tr>
<tr>
<td></td>
<td>1–3 (S2–4)</td>
</tr>
<tr>
<td></td>
<td>2–1B (S5)</td>
</tr>
<tr>
<td>Para. 9</td>
<td>1–3 (S1)</td>
</tr>
<tr>
<td></td>
<td>3–1A (S2)</td>
</tr>
<tr>
<td></td>
<td>3–1B (S3)</td>
</tr>
</tbody>
</table>
The only unexpected aspect of this introduction is the character of the opening sentence in the final paragraph. Its opening phrase evinces close links with the Move 2, and it further builds up expectations of Move 3 by the switch into we. On the other hand, the Past Simple and an earlier dated reference disconfirm those expectations. In effect, the opening of the final paragraph communicates a somewhat mixed message. However, this is precisely what we might expect when authors use, as a transition, discussion of their own previous work which is directly and causally related to the study actually being presented.

In general, therefore, the four test introductions usefully confirm the claims made for the CARS model, particularly in terms of the linguistic exponents used to express moves and their associated steps. In outline the first and last introductions fit well, while the third appears to be a fairly typical example of the fronted-Move 3 subtype. The fact that 25% of a very small sample opened with a Move 3 needs a little further investigation. Accordingly, I checked the 16 RAs published in RTE in 1987 and found that 13 used the standard placement for Move 3, two were fronted, while the remaining article was hard to categorize as it used an anecdote from the study as an attention-getting opening. If we leave this last aside, three out of 19 RTE RAs were fronted; certainly a higher proportion than found in Swales and Najjar (1987), but still under 20%. The major anomaly occurred in the second introduction, where there was no Move 2 that could be related to Move 3 in any but the most indirect of ways. It was suggested that this mismatch did not so much represent a possible weakness in the Create a Research Space model as a possible weakness in the introduction itself and, moreover, one that the analytic procedures themselves assisted in revealing.

7.5 Methods

In 7.2, 'The constructing of research articles', I have already presented some general findings on the language of Method sections. Here I attempt to characterize the discourse of this part of the RA genre a little more explicitly and to draw some tentative conclusions about disciplinary variation. We can begin with the opening sentences of a biochemistry Method section cited by Gilbert and Mulkay (which is very similar to the one from Knorr-Cetina discussed in 7.2):

Heavy beef heart mitochondria were prepared by the method of Wong and stored in liquid nitrogen. Well coupled mitochondrial particles were prepared by a modification of the procedure of Madden. These particles were used to prepare inhibition-protein-depleted particles by centrifuging under energized conditions according to the method of Gale ... (Gilbert and Mulkay, 1984:51)