Hybrid Studio Matters
Ethnomethodological Documentary of a Tutorial

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Abstract
This paper looks into the electronically augmented, or 'hybrid' contemporary environment, through the spatial and temporal thresholds or 'seams' that it encompasses. Electronically augmented environments have been studied increasingly within the past few years. The question of how architects respond to the new spatial conditions, how they interpret and design space, is a major emerging issue. Within these broad questions, we conducted an ethnomethodological analysis of a particular environment-example: the architectural design studio, through the documentation and analysis of an episode in an architectural tutorial. The analysis of this case-study is based upon the seams, the thresholds or ruptures that occur between different media. We argue that the shift or transition from one medium to another can be smooth and un-noticed, whereas, in other instances, it shifts completely the centre of attention, the flow of the tutorial or the perception of the means (and other elements) engaged. The transitions, occurring within the recorded tutorial, are studied in relation to the notions of *engagement*, *immediacy* and *continuity*. We consider that these three notions bring forth the complexities, conflicts and richness (of the hybrid environment) that the tutorial recording reveals.

1. The immaterial, the fusion and the seam

As argued in many contemporary texts, the space we inhabit is increasingly constituted by non-visible or non-material elements, some of which are closely related to new technologies. By 'technologies' we mean both those that emerge within the conventional construction of a building (either as part of its infrastructure or as electromagnetic waves) and also the portable, mobile, temporal technologies, such as small functional devices. Both kinds of new technologies create spatial qualities and affect the way we perceive spaces and their interconnections. The electromagnetic field, for example, although not visible, does define territories, connections, thresholds and edges. Jonathan Hill, refers to this condition as 'electromagnetic weather'[1], and he looks particularly into the way that it defines the place and thresholds of the home. The electromagnetic weather's relation to 'home-ness' is mainly considered in two ways: The electromagnetic weather enters the physical home (through electronic devices) and shifts the way the home is connected to the 'outside' or to the 'unknown'. The electromagnetic weather, though, can also re-create a 'homely' condition *elsewhere*, since the devices that control the electromagnetic 'thresholds' of the home are portable.[2] In the same way that the electronic technologies create homeness, they can re-create other spatial qualities too, such as place for work, teaching, learning, communicating, etc.

William Mitchell looks into contemporary 'hybrid' environments by opposing them to the 'virtual reality fascination' of the recent past. Mitchell argues[3] that the debates about new technologies, the virtual spaces and their potential or limitations, are being replaced by discussions and research about the *fusion* of the new media in their physical environment. One of the examples that he gives is that of a young researcher in a library, surrounded by books, connected to the Internet through his portable computer, taking pictures of interesting pages with a digital camera, and getting guidance through his mobile phone by his supervisor or colleagues. As Mitchell argues, "[t]he challenge… is to start thinking like creative fusion chefs – to create spaces that satisfy important human needs in effective new ways, and that surprise and delight us through digitally enabled combinations of the unexpected."[4]

This quest for fusion uses a language of continuity, viscosity, or flow, and its 'collapse' implies a condition which wishes to conflate any possible oppositions, such as the observer with the observed, the human with the machine, the subject with the object.[5] This conflation transforms previously discrete dualities into smooth ambiguity, a blurring of meanings. Of course, this conflation also becomes responsible for rupturing and unsettling the interface; in the manner of a collapse, it becomes a major contributor to rupture and distress.[6] In contrast to this ambition towards the smooth, there are numerous examples of tools and technologies the use of which seems to rely on the obviousness of the seam, a conspicuous and distressed relationship between the performer and instrument. The ideals of 'smart architecture' and tangible computing, in blending and merging, can be distressed by resistance — an architecture that does not only facilitate but fights and provokes in an articulation of space by event.[7] Within this context, our paper explores the seam or transitions between digital and physical media within an ordinary architectural tutorial, and the issues, that the observation of these transitions bring forth.

2. Methodology

In order to examine the way that the members of the education activity carry out their everyday tasks we recorded an all-day tutorial of the 1st year architectural design studio, functioning as participants-observers. A recorded and selected video segment was then studied within an interdisciplinary focus group that includes researchers from Human Geography, Computer Sciences, Sociology and Architecture. In order to represent the footage in textual form, it has been transcribed through the techniques of conversation analysis.[8]

We follow Garfinkel's consideration of ethnomethodology, as the study of the methods that people use in accomplishing their mundane everyday activities "by paying to the most commonplace activities of daily life the attention usually accorded extraordinary events, seek to learn about them as *phenomena in their own right*."[9] In this sense we are not interested in an extreme or extraordinary hi-tech studio-situation, but in the mundane level of an ordinary design studio class (here the first year design studio of the University of Edinburgh, Scotland). Ethnomethodological studies have been emphatically distinctive in giving an analysis 'from within' to what is actually going on in social activities. By focusing on the micro-practices of people's life they inform us about details that our habitual seeing of the world actually overlooks.[10]

Methodologically, the use of a concrete example is not a mere application of existing theory but, as emphasized by Flyvbjerg, stands as a fundamental generator of knowledge.[11] By focusing on the minimal level of what people actually do when they perform everyday activities, it is possible to go beyond the stereotypical view that considers technology as a

'mere' tool outside the substance of the project itself. In our case, new technologies are part of a procedure and of a discussion involving all aspects of being, doing and interconnecting things.

3. The situation of the tutorial

Jonathan (tutor) and Mark (student) are having a tutorial about the design of a small house. They are sitting in front of Mark's desk: on the desktop there is a drawing board and on top of it there is an open notebook with lots of sketches and notes; on it, a technical pen, a pair of eyeglasses and an open laptop with a 3D model. The tutorial is nearly ended and Jonathan makes specific comments on how Mark should continue working. Jonathan rotates the 3d model while talking, and Mark takes notes of Jonathan's comments on his notebook:

Figure 1. The scene

Tutor (Jonathan):   you need to address the rest of the site now too (1) and, yea, put your service
                ((M starts writing something on his notebook))
                        ((J gestures generally over the site in front of the screen))
                                                ((J puts his hand on the laptop's
                trackpad and starts rotating the 3D model))
                spaces in:: (here), em.. (yea), and that's what you do on that wall, I guess you
                                        ((J zooms in the model))
                                ((M writes on his notebook))
                put your service spaces in here::: the bathrooms, the toilets, the storage rooms, whatever else you need back here.
                                ((J zooms even more and looks inside the room))

Student (Mark):   yea:: I was thinking also:: the traffic would probably be quite a bit of a
                        ((M stops writing))
                (reprobation) on that back wall, so not that suitable for bedrooms.
                                ((M points towards the screen))
                                ((J who has zoomed to close to the building, gets stuck for a couple of seconds
                in between the two floors))

T: yea, =

((zooming in and out in the computer model))
= (3) that's useful tool, I think that I would (...) probably do a quick physical model

S: yes, it might be useful..

T: and then em..

S: I can probably make, e:: you were saying to do wax model=

T: =I think you (should) just do massy models right now=

S: =do you recommend maybe considering doing (.) some cast models

T: I don't thi:nk so (.) I don't think you need to (.) cause that sounds like it's going take lots of time and effort to me (.) I would just do it in wooden blocks (.) and and then (.) [start working on your paths]
                    ((J takes his hands of the computer and sits back))
            [Chop some woods from the workshop]
            in wood and then: and paths like this that go around it (.) you know (1) because you're going to spend all day sort of working on this thi:ng and trying to reso:lve it, I think (.5)
                                        ((J points towards the computer screen))
            = it is kind of more manageable idea (probably)

S: (...) so probably start with (this) (...)

T: I think you le:a:ve this now and you'll come back to this later o:n, but, em:
                    ((J points towards the computer screen))
                    ((M writes on his notebook))
            you leave that and you see what you (need to)

S: to change (...)
            ((J knods his head affirming))
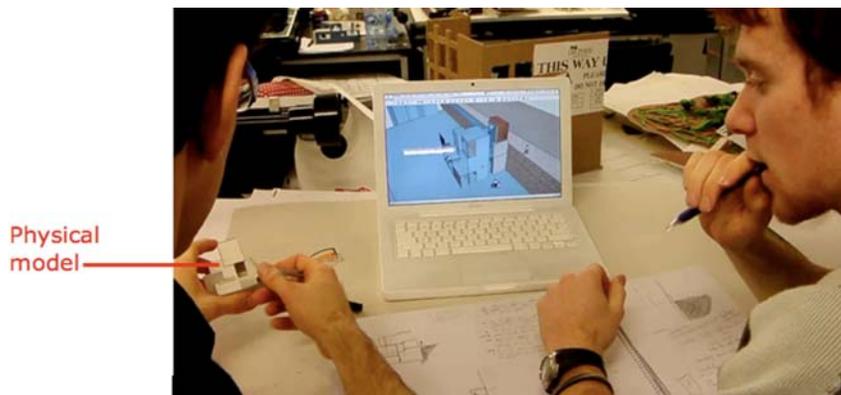
Figure 2. Interaction with the physical model.

T: to clarify a little bit, and the:::n (.) cause there is an imme::diacy, right?, like (1.5)
                                        ((J turns to his left and takes a small carton
            model))
            = when:: there is the front area you going to mo:ve and shift things=
            ((J gestures with the model in hand))
                                        ((J puts the carton model back on his left))
            I like working on the computer as we:ll actually (.) I can find it in visualizing pretty well e
                    ((J points towards the computer screen))

S: (…) that's something I was trying to (…) (in hand) and then (…) study the structure (…)
               especially in plans and sections, so (…) that's (why) (…)

T: the other thing you've got to do is (.) speaking of sections (.) is draw sections, a::::nd
                                                                                    ((J   flips
            to the previous page of Mark's notebook, where there are some sketches of sections))
            and re:al sections, not just (0.5) you kind of need to move beyond this =
                                                                    ((J points towards the sketchy

            sections in the notebook))
            = and get to (.75) heights (.5) and actually to sca:le=

Figure 3. Showing the sections in the notebook.

S: but I could probably (.) could I not do it fro::m (.) [here]
                     ((M flips back the page to the one that was open before))
                                              ((M points towards the computer model))
T: [from here]
                                    ((J points towards the computer model))
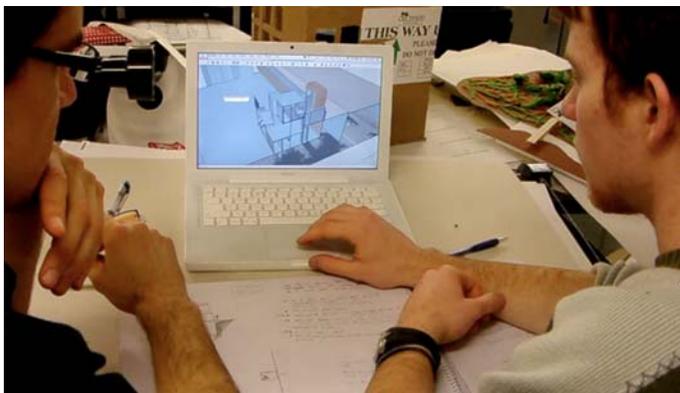
Figure 4. Cutting a section on the 3D model.
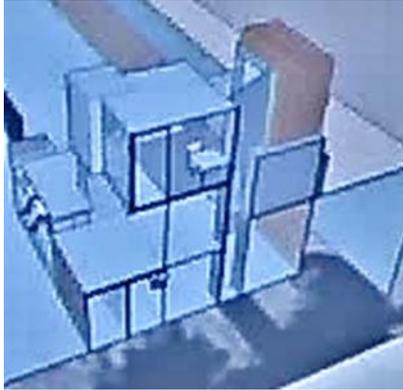
Figure 5. Close-up of the section.

T: yeah I mean you can (.) you can cut sections (.) you can cut sections and then they can
            ((Mark puts his hand on the computer's trackpad))
                              ((J make a gesture like a cut))
            print them o:ff=

S: =in sketch form (.) and then [I can]
                    ((Mark clicks on the section tool at the toolbar))
T: [yeah] (.) print them o:ff and then sketch on top of them
            maybe but you should have some re:al (0.5)
                              ((Mark clicks over a surface that automatically creates a section
            of the building))

S: so, probably work from here and (...)
            ((Mark points at the computer screen, and then takes his hands from the computer))
                              ((J nods affirming))

4. Inquiring into the situation

In the above situation we see five major seams in the transition between different media: 1)The first occurs in the beginning of the dialogue where Jonathan puts his hands on the trackpad and starts to navigate the model; 2)the second occurs when Jonathan leaves the computer, sits back while describing the new model that Mark should make; 3)the third is when Jonathan reaches the carton model and leaves it behind; 4)the fourth is when Jonathan flips the page on Mark's notebook and comments about his sketchy sections; 5) and the fifth when Mark puts his hand on the trackpad and makes the section of the 3D model. There are further minor seams that we discuss later on. Because of the limited space of this paper, instead of dealing with each one of the five seams separately, we organize our comments under three themes that summarize our inquiry: *engagement*, *immediacy* and *continuity*.

4.1 Engagement

A hot medium is one that extends one single sense in 'high definition.' High definition is the state of being well filled with data. ... Hot media are, therefore, low in participation, and cool media are high in participation or completion by the audience.[12]

The five abovementioned seams happen between three different media: the computer, the physical model and the notebook. During the situation there appears to be a circle that moves from the computer to the physical model, to the notepad and goes back to the computer again. If we accept McLuhan's distinction between hot and cool media, we could argue that the computer is the 'hottest' medium of all three. The glossy high definition screen is compacted with visual information that is deliberately created to attract the eye, by photo-realistic textures and colors. On the other hand, a physical model is the 'coolest' medium since it is a arguably a more limited and abstract representational medium, allowing a plethora of interpretations.

The reason for mentioning this distinction is not the mere categorization of the media, but to consider the way in which Jonathan and Mark become engaged with them to different degrees. According to McLuhan, hot media allow less participation since the density of their information leads to a passive stance.[13] In the case of the computer, the shiny screen seems to dominate in the setup of the scene of the tutorial. The engagement of the parties, though, is asymmetrical since there is only one who leads the navigation within the model and controls what appears in the screen. Since the view of the virtual model is actually flat (a sequence of perspective images of an imaginative 3d space), the one who has control of the trackpad (or the mouse) leads both observers through the virtual space. Here we can, again, make a distinction between the medium as it is experienced by the one who navigates and by the one who watches; for the one who watches it is even more passive, since he cannot virtually navigate himself exactly as he would wish to. In our case study, the control of the navigation is passing back and forth from the student to the tutor. The control of this navigation is quite closely related to the sequence of issues emerging within the discussion; in some sense, and to some extend, the one who controls the trackpad controls the flow of the discussion too. A characteristic shift (or seam) within the tutorial dialogue related to that is the moment when the student replies to the inquiry of the tutor (about making a drawing of a section) by 'cutting' the virtual model and showing, thus, its section. At that moment the student takes control of the trackpad, offers a new input and navigates the ensuing dialogue.

We could argue, thus, that the computer, and particularly the immersive virtual environments are 'hotter' or 'cooler according to whether one is actively engaged in them, or if one is a passive receiver of their alluring images. Here arises also the issue of 'enjoyment': the tutor, while suggesting to the student that he try some thing out with a physical model, says (as if admitting something not generally obvious or accepted) that he actually enjoys working with computer models himself too. Although it is traditionally believed that physical manual work provides the enjoyment of making, in our dialogue the opposite is also evident: the computer model is not only a tool for dis-engaged work, but an immersive tool like many others. At this stage the discussion develops around the medium itself, whether physical or electronic, and not the space. The two participants have moved back, facing the computer as a tool 'present at hand'. the medium, though, still affects the discussion, and although they are not moving within the virtual space, the one who controls the computer seems to dominate the dialogue at that moment.

4.2. Immediacy

A weave always weaves in several directions, several meanings and beyond meaning. A network-stratagem, and thus a singular device. Which? A dissociated series of 'points', red points, constitutes the grid, spacing a multiplicity of matrices of generative cells

whose transformations will never let themselves be calmed, stabilized, installed, identified in a continuum. Divisible themselves, these cells also point towards instants of rupture, discontinuity, disjunction.[14]

The last seams, towards the end of the discussion - that negotiate how the section would be organised - reveal interesting points about how the two parties construct notions of immediacy. When Jonathan pointed out that Mark should make some sections he asked for a 'real' section, asking for a shift from the sketchy sections towards 'proper' drawings that have more accurate heights and 'actual' scale. Mark's response was to flip back the page to the original drawing, an action that anticipates the fact that he was going to take the situation under control. He asks whether he could do this from the computer, a question accompanied by a definitive gesture towards the computer. Although Jonathan understood immediately what Mark wanted to say, since – as we already mentioned - they repeated the same phrase 'from here,' Mark took control of the trackpad and executed the section 'right there' in 'real time.'

This seam makes explicit a suggestion about a hybrid-section that was using the computer-generated (out of the 3D model) section, and was then elaborated further by hand or through some other means. Nevertheless, this section was not a smooth transition between the digital and manual but rather a stratagem of discontinuity, rupture and overlap of the two media, that is revealed in the phrase 'print them off and sketch on top of them'. Furthermore, there is another issue emerging here: arguably, the section is generally made to present an abstract aspect of space that cannot be visualized otherwise. Here, though, Jonathan and Mark undertook a converse operation: since the 3D model already existed, they rotated it to see it from all sides or from within. However, Jonathan still asked for a section and Mark did offer it to him, to address the need for a different kind of projection of the space. A question raised here is whether the tutor asks for a section because there is not enough information and detail presented through the computer 3d model, or because there are other aspects of space that a photo-real 3d image cannot provide but a conventional section can.

At the same time, when Jonathan asked for the sections, we saw that he did not take hold of the trackpad and cut a section of the model himself. This fact shows, first of all, that sometimes the tutor may not be familiar with the specific software that the student is using, and is therefore unable to perform operations that in a physical model would be obvious: cut bits off, add a piece of cardboard to make a point, as he did while describing how Mark should make the model with wooden blocks and the paths from card fragments lying on the desk. Secondly, it shows that Jonathan was less comfortable performing radical changes on Mark's digital model (a common practice in physical media). Even if such a change was attempted there is always a variety of risk-reducing strategies deploying commands such as 'Save As' or 'Go Back'. This is also related to issues of authority, but also the notion of 'damage' and the value of the artifact: the student's model is sometimes not only a means or a tool for investigating and designing the space, but also a valuable object, because of the time and effort spent on it; because of the investment of care and engagement; and because it is made by the student and it has a meaning that is immediate to him.

4.3. Continuity

What interests us in operations of striation and smoothing are precisely the passages or combinations: how the forces at work within space continually striated it, and how in the course of its striation it develops other forces and emits new smooth spaces.[15]

The shift from the space of the designed house to the space of the tutorial is evident at the stage of the dialogue where the tutor starts – for the first time – talking about the medium itself, saying "It is a useful tool." The shift from the 'virtual' space to the actual physical space of the studio seams to be occurring in several stages, two of which have special significance. The first is when the discussion (verbally) moves from one environment to the other. The second is when the hand movement accomplishes a similar shift some seconds later.

While the tutor was – in some sense – situated within the designed house, navigating within it and exploring its spatial qualities (in order to understand it and comment about its qualities to the student), he started commenting about the medium itself with comments about the usefulness of the tool. At that particular moment we could argue that he moved back to the physical environment of the studio, whereas previously we was immersed in and engaged with the 'virtual' space of the house. At the moment that he started discussing the medium itself and its several aspects in relation to the designing process (such as the time needed to make it, the degree of precision necessary at each stage of the student's investigation, etc), he turned the software and the computer into an object 'present at hand' laying in front of them.[13]

Nevertheless, by following the movement of the tutor's hands, we could argue that this transition actually occurs later on: when he stopped navigating within the virtual space, left the touch-pad and sat back, and also started indicating with his hands the computer as an object itself. Although he first made the shift by starting to comment on the medium, he was still half immersed within the virtual space; still navigating within the house. If we were not listening to the dialogue we would still think that he was ontologically immersed within the designed house, imagining himself walking within it.

It is not a simple matter to identify the transition from the virtual computer model to the physical space, and there are moments when we are not fully here or there, not fully immersed within the physical or virtual environment. Although the transition is perhaps obvious at key moments described in this analysis such thresholds of transition also occur in more subtle ways. This is frequently revealed through the way language is used, regarding oneself either fully immersed or fully aware of the environment in which one is situated. One could argue that we inhabit such transitions or seams since these are practically always present in different degrees of consciousness and at different intensities. Sometimes a medium attracts our attention and we treat it as a distant object of reflection. At other times we are immersed in the medium and are oblivious to it.

5. Concluding remarks

In this paper we argued for the significance of the seam, against the presupposition that considers hybrid environments as fused spaces that are characterized by smooth homogeneity. One approach to resisting the imperative towards the seamless interfaces is to counteract it with the concept of perturbation: a time-based disturbance of the surface, that may tear, rupture and otherwise fracture it. The continuity implied in designing spatial form can be troubled, resisted and ameliorated by an articulation of time.[16] Such temporal seams we found to be present in the study of the tutorial between Jonathan and Mark in the architectural design studio.

Although the 'seams' between the experience of different mediums can often remain unnoticed, it can also bring forth to our perception the nature of the medium itself. The

transition from a medium as a tool 'ready to hand' to one 'present at hand' (and the other way round) brings our attention to the qualities of the medium and also to the relation between the medium and the substance itself; the relation between the medium as a medium and the medium as a 'message'.

The transition between mediums, we argue, should not be regarded as a smooth sequence-shot in a film. Instead of conveying a scene as one continuous time sequence filmmakers use the element of temporal disruption, as in montage, of switching from one spatial location to another. These cuts may convey an overall sense of smooth temporal flow. In the situation that we studied our interest lies with the seams between the different sequences. In this sense, we promote the enculturation not of 'fusion chefs' but rather of film editors that focus on the montage and the way that the cuts or the seams articulate a whole image, without necessarily conflating one scene with another.[17]

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7. Endnotes

[1] Jonathan Hill, *Immaterial Architecture* (London: Routledge, 2006). p.23

[2] The portable computers and the mobile phones, for example, can re-create a homely feeling or atmosphere elsewhere, far from the physical home, by connecting the user to his familiar faces, activities, etc. The 'homely' here is not based upon the physical space but rather upon the links, connections, possibilities of communication and electronic objects or databases available to the user.

[3] in his essay "After the revolution_ Instruments of displacement"

[4] William Mitchell, "After Revolution_Insturments of Displacement," in *Disappearing Architecture: From Real to Virtual to Quantum*, ed. G. Flachbart and P. Weibel (Blackwell Synergy, 2005).

[5] Pedro Rebelo and Richard Coyne, "Resisting the Smooth: Time-Based Interactive Media in the Production of Distressed Space" (paper presented at the Digital Design: 21st eCAADe Conference, Graz, Austria, 2003).

[6] Richard Coyne, Pedro Rebelo, and Martin Parker, "Resisting the Seamless Interface," *International Journal of Architectural Computing* 4, no. 2 (2004).

[7] Bernard Tschumi, *Event-Cities 3: Concept Vs. Context Vs. Content* (Cambridge, Mass.; London: MIT Press, 2004).

[8] Here, we have used the Conversation Analysis' transcript techniques offered by Emanuel Schegloff, in his online transcription project
http://www.sscnet.ucla.edu/soc/faculty/schegloff/TranscriptionProject/index.html [accessed 23. 03. 2007]

[9] Harold Garfinkel, *Studies in Ethnomethodology* (Englewood Cliffs, N.J.: Prentice-Hall, 1967). p.1 [my italics]

[10] This fact does not mean that ethnomethodology ignores the wider context (social, political, economical, material, or immaterial) of the micro-practice. On the contrary suggests that the context, either material or immaterial, does not merely surround the activities, but the context and the activity co-exist. Michael Lynch, *Scientific Practice and Ordinary Action: Ethnomethodology and Social Studies of Science* (Cambridge: Cambridge University Press, 1993). p. 29

[11] Bent Flyvbjerg, *Making Social Scinece Matter, Why Social Inquiry Fails and How It Can Succeed Again* (Cambridge et. al.: Cambridge University Press, 2001).
Flyvbjerg mentions also the role of ethnomethodology as "especially interesting" view within the wider hermeneutic-phenomenological strand of sociology.

[12] Marshall McLuhan, *Understanding Media: The Extensions of Man* (Oxon: Rutledge, 2001/1964). p. 24-25

[13] Ibid. p. 25

[14] Jacques Derrida, "Where the Desire May Live (Interview)," in *Rethinking Architecture*, ed. Neil Leach (London: Routledge, 1997). p. 332

[15] Coyne, Rebelo, and Parker, "Resisting the Seamless Interface."

[16] G. Deleuze, *A Thousand Plateaus: Capitalism and Schizophrenia* (Athlone Press, 1987). p. 551