Chapter II

Classicist fabric
and surface for Lacan
Theory of intrinsic topological surfaces

1. Definitions

a₁ – Topological surfaces

A topological surface is an assemblage of scraps of fabric. In order to be of this theory's concern, the assemblage should be made according to two principles that one must respect rigorously.

A topological surface presents itself as a Harlequin suit, a *patchwork* of irregular scraps yet whose characteristics are not inconsequential.

*Scraps of fabric* are extendable and retractable at will, in agreement with the necessities of the assemblage. In topology, measure does not matter, for either the surface or fragments that constitute it. These surface elements are polygons that can be placed on the plane (that is to say, locally equivalents to $\mathbb{R}^2$) or on the sphere, which is the same (see chapter IV, p. 148). These rags of fabric are topological discs whose perimeter is provided with points. These cut up the perimiter into segments, and these points are its extremities. There is at least one point: the smallest topological disc (a scrap of fabric or a spherical pill) is the disc whose perimeter is cut up into a single segment by a point.
Each surface assemblage is realized according to the principles that we now say should be called *paving* for the cases in which the scraps of fabric are polygons of all kinds. If it is constituted by scraps that are exclusively triangular, then we speak of triangulation. In all cases, the scraps of fabric are the paving's faces, the sewn segments its edges and the identified extremities (points) its vertices. We also employ in an everyday manner the term “face” to designate the front and back side of a scrap of fabric. Later on we will analyze this difficulty with this vocabulary. That a paving face would have two faces is a consideration that in what follows we will devote much attention to, clarifying this paradigm further in chapter III.

**Two principles of assemblage** of these fragments of fabric that are precise and imperative define topological surfaces.

*First principle*: Two scraps are sewn together along a segment proper to each that is converted into an edge, a common frontier between both (a frontier of this nature does not pertain to the edge of the surface, it integrates the graph to a consistent paving on the fabric).*

*Second principle*: There are no more than two scraps of fabric sewn along a same edge (in the Appendix we reject the constructions that present more than two fragments of fabric sewn along a same edge).

*From this point onward Vappereau clarifies that there are two heterogenous kinds of edges in topology, since in the previous chapter he spoke of the “edge knot” as pertaining to extrinsic topology, and here now he speaks of “edge” as it pertains to intrinsic topology, such as the counting of vertices, edges, etc. As a single term is used in English-language mathematics, that is, “edge,” I will translate both bord (an extrinsic edge) and arête (an intrinsic edge) as “edge.” It should be clear from the context whether Vappereau is treating intrinsic or extrinsic edges. (-Marc's note)
This defines all of the topological surfaces that can be studied through this theory, henceforth called the classic one. It is possible to enumerate all of the cases and recognize those which are alike: this is the classification of *intrinsic* topological surfaces.

Defining intrinsic topological surfaces from their assemblage implies as a reaction the homology of the trajectories on the surface of our fabrics, and gives us information about this homology.

Our fabrics are intrinsic topological surfaces: it is, basically, a very simple case of translation and definition.

\[ a_2 \quad \text{- \em Definition of the edge of a topological surface} \]

\[ \cdot \text{The edge} \text{ of a topological surfaces is the meeting of the segments of the fabric scraps that do not deal with the sewn part of the assemblage.} \]

This gathering of segments assembled extremity to extremity always makes space for a gathering of separate circles. This can pertain to one or various circles. In all cases, we will speak of the edge of a surface in order to allude to this gathering; of the \em components of this edge for speaking of each distinct circle; and we will refer to the \em edge number (like for how one says the price of bread) for
the number of edge components.

We can then define the holes as more imaginable which cause in this way a rupture on the surface. Each hole that is imaginable as a rupture of surface is defined by means of a circular edge component of a topological surface. This is the opportunity to discover for oneself the reduction of an intuitive invariant, this imaginable hole, to a well-constructed invariant, the edge component. Properly speaking, there is no hole imaginable on the intrinsic surface; only its edge insists in it; and for us, the hole ex-sists.* This defines nothing more than a type of hole among those which we are distinguishing, and shows the necessity of distinguishing between them different types of holes.

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It can happen that every segment would be sewn on to the assemblage, in which case the edge turns out to be annulled: therefore non-edged surfaces ex-sist as well.

![Fig. 6](image)

In this way, two types of surfaces are distinguished: non-edged surfaces, for those assemblages which deal with all segments of the fabric scraps; and edged surfaces, in which some segments of fabric scraps were not sewn together. We emphasize again that the gathering of these segments constitutes one or many circles. This notable fact, which risks being converted into something too evident, deserves to be meditated upon (see fig. 5).

Having postulated the distinction between edged surfaces and non-edged surfaces, one can then establish a correspondance between them.

a₃ – First important proposition

*Proposition.* All topological surfaces (edged or not) correspond to a non-edged surface: a) if the surface lacks edge, the corresponding non-edged surface is this surface itself; a') if the surface has an edge, the edge of this surface S is a gathering of separate circles. We can construct a non-edged surface (closed) S' associated with S by closing the holes imaginable as a rupture of surface; these holes are delimited by each one of the circles that compose the edge. The closing of the holes is achieved thanks to a disc sewn across each circular component of the edge of surface S.

We were saying that the imaginable hole ex-sists for us as an intuitive invariant; really this is a rather weak notion of ex-sistence because the hole is substantiated by the disc that comes to close it, something that assures us in our first proposition.

*Existe* is best translated as “ex-sist,” drawing apart the syllables a bit to make them stand out, rather than “exist,” which in English passes too quickly over the Lacanian sense of the term, as a verb pairing with insist; these two verbs for designating an entity's being intrinsic (insistance) or extrinsic (ex-sistance). (-Marc's note)
It is not for this reason that this type of hole stops being, like the others, different from the void in its manner of being. The void could not be confusable with a hole if we were to define it by the empty set. The hole is more or less substantive, as we will see next, while in set theory the void is of the order of an essence. The distinction between substance and essence, as we interrogate it within our play of translation, corresponds in principle to the difference between the definition in extension and the definition in intension of a set.

Return to the substantiation of the imaginable hole.

Two holes. One hole closed, the other left as it is.

In the drawing on the right, a deformed disc closes a hole of the surface from the drawing on the left.

This surface presents a single hole

A disc presented as a deformed rectangle...
...achieves closing the hole...

in order to construct a torus without the hole

Presentation of the deformed disc which comes to close the hole

Fig. 8

This proposition facilitates the theory of surfaces because it allows one to be attentive to a theory of non-edged surfaces.

Some surfaces demand being submerged in a space of dimension four in order to remain closed; it is worth saying something, for what would be \{82\} realizable effectively according to our principles of assemblage, about the non-edged surface which corresponds to them. The surfaces that constitute an exception are the non-orientables; we define these later on.

If we utilize our first main proposition backwards, we can go through the stage of a theory of surfaces with a single edge component (a single hole) corresponding to each non-edged surface to another one that presents a single hole. This theory is an intermediary between the theory of non-edged surfaces and the theory of surfaces whose edge has various components. Supported by this correspondence with topologically non-edged surfaces, we embark upon the theory of intrinsic topological surfaces of all kinds without presenting through drawing anything more than submerged surfaces that would have at least one edge component. This strategy should not lead us to forget the ex-sistence of closed surfaces (without edge) that are unrealizable in a space of dimension three.

\( a_4 \) – **Intrinsic invariants**

Intrinsic invariants enable mathematicians to recall topological surfaces in their identity to one

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1 Essaim, Appendix, p. 149
another, and also to distinguish them when they are disimilar. For us, these mathematical invariants offer an even greater interest, which already makes room for reduced and well-constructed definitions that translate significant rules of a principle into flexible objects. These rules, at times, exhibit the difficulty of being the condensation of various invariants. In this work we discuss diverse cases of figures, in order to maintain the intuitive way of speaking without losing any rigor, and to practice translation in the two senses of the term.

This practice is current on the tongue, as a linguistic sign is translated into other signs of the same tongue, into another tongue or into a system of non-linguistic symbols. In a moment of extreme alienation, it can happen that some will obstruct this practice by trying out the use of timbrous phrases, and it is amusing that we are at the same time reproached for devoting ourselves to this impoverishment of translation and developing its intensive practice. For us, the point is not to “reclaim the suppression of such deceiving expressions like the exit or the setting of the sun;” supposing that we are of Roman Jakobson's opinion when he keeps employing this Ptolemaic imagery “without which would implicate the refusal of the Copernican doctrine, resulting in our stupidity in making our current conversations about the sun as East or West of the representation of the earth's rotation” ([25], p. 81). This author tells us about this exercise, which is for us homologous to its structure in accordance with there being no metalanguage. To say it very simply, as Freud emphasized it, “all signs can be translated into other signs” and this translation structures language without making us depart from any of it.

At the end of the Introduction, we enumerated the cases of translation by this nature which we found ourselves in relation to with surfaces. Here we would give the better-constructed names of these surface invariants in set theory.

In principle the possibility ex-sists of their being orientable or not, which corresponds to the number of faces; this term is justly equivocal because in mathematics it also serves to designate the faces of a paving. We maintain it, nevertheless, in the case of unilateral or bilateral surfaces.

Additionally there are the edge number, the genus, the Euler-Poincaré indicator, the fundamental group and the homology group, which sharpen and sort out the definition of the hole.

Some of these invariants, like the genus, can only be defined for any topological surface by means of this same invariant defined for the corresponding topological non-edged surface.

We are saying that these characteristics are invariants because they are properties that would not vary in the course of the continuous transformations of topology.

We give this definition in chapter III with a commentary on each one of these invariants, after indicating the range of the recourse to these invariants in the articulation of the Symbolic and the Imaginary.

2. Basic elements of the classification of surfaces and their mode of composition

a₁ – Theories

· First version: Theory of non-edged surfaces

Four basic elements retain themselves for composing any surface. This is about the following four non-edged surfaces: the sphere, the torus, the projective plane, and the Klein bottle.
For the projective plane and the Klein bottle, which we are not representing here, see the Appendix (p. 303).

To compose the non-edged surface from the aforementioned four non-edged elements, a hole in each element is made (which makes an edge on each one of them) and they are then taken back to glue themselves together along these edges that close the holes.

- Second version: *Theory of the edged surfaces that borrows a single circular component* (pierced a single time).

1. *Articulation* of the previous theory with what is expounded now.

Make a hole (an edge made from a single component) on each one of the four non-edged surfaces from the previous section. The sphere provided with a hole is a disc. The torus provided with a hole is called a pierced torus, and we present it in a crossing of strips. The pierced projective plane is the M"obius strip. The pierced Klein bottle is the M"obius 2-strip. These latter two equivalences will be established in the Appendix (p. 315) through diverse representations of, for one part, the projective plane, and for the other, the Klein bottle.
2. The basic elements of this theory and its mode of composition.

We can decompose any surface that would have at least one edge reduced to a single component into a composition of various elements, chosen among the following four: the disc, the pierced torus, the Môbius strip and the Môbius 2-strip.

![Fig. 11](image)

In order for the edged surfaces to compose themselves together, the edged elements that we just finished citing must sew themselves along segments of their respective edges in accordance with our principles of assembly.
Third version: *Theory of edged surfaces of all kinds* (pierced)

1. *Articulation* of the previous theory with what is presented next.

Surfaces of all kinds that would have more than one edge component are obtained from surfaces with a single edge component.

The reason for this is that any surface corresponds to a non-edged surface, in accordance with our main proposition. From this we have deduced, using it [our proposition] backwards, that to a non-edged surface corresponds a surface of a single edge component. This corresponds therefore to an infinity of edged surfaces, surfaces that are the same ones of which some correspond to the non-edged surface that are associated with it.

The supplementary edge components are such other holes that are imaginable differently. We can make all the holes imaginable as a rupture of surface as we would like to, that is to say, to take any number of pills (discs = pierced spheres).

Instead of saying that we make supplementary holes on the edged surfaces that present a single component, we will say that we contribute supplementary elements, each one of which is equivalent to a pierced disc (a sphere of two holes = a strip of two faces).
The pierced disc

The pierced Møbius strip

The Møbius strip and a pierced disc

Fig. 13

We make correspond to the sphere (a closed surface) the pierced disc that has two circular edge components. Suppose the other way around that the sphere is equivalent to a pierced disc whose two holes have been closed.
We obtain this way a greater formulation of the theory of edged topological surfaces of all kinds, in which we return to encounter Griffiths’ presentation [3].

2. Basic elements of this theory and its mode of composition.

We can decompose any surface that would have at least one edge, with the exception of the disc (the pierced sphere), by an assemblage of elements, chosen from among the following four: the pierced disc, the pierced torus, the Mœbius strip and the Mœbius 2-strip.

We compose with basic elements like those of the previous section, respecting our two principles of assemblage.

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One composed of two Mœbius strips is equivalent to one pierced Klein bottle, and the Klein bottle is equivalent to one composed of two projective planes. We can satisfy ourselves with three basic elements, since one of the four is already a composed one. The major theorem that follows will give us information about the election of four elements.
a₂ – **Developed composition of the basic elements**

We can utilize various similar elements (for example two tori in order to make a double torus).

![Two pierced tori](image)

Two pierced tori  The double torus = the 2-torus

Not all of the basic elements are necessarily utilized.

We will enumerate some results. For non-edged surfaces:

- One composed of two spheres makes one sphere.
- One composed of *n* spheres makes one sphere.

- One composed of two tori makes a double-torus (also called 2-torus; see earlier).
- One composed of *n* tori makes an *n*-torus.

- One composed of two projective planes makes a Klein bottle.
- One composed of three projective planes makes, at first sight, one projective plane plus one Klein bottle; but it also makes room for the second important proposition of this theory.

a₃ – **Second important proposition**

\[ \text{Main theorem} \]

- For non-edged surfaces:
  - Three composed projective planes make one projective plane plus one torus.

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- For edged surfaces:
  - Three composed Möbius strips make one Möbius strip plus one pierced torus.
One must not conclude from this theorem that two projective planes composed among themselves are equivalent to one torus. Two projective planes are only equivalent to a torus in the presence of a third projective plane. There should always be at least one projective plane remaining when we replace the composite of two of them by a torus. Therefore it can occur that there remains two projective planes composed among themselves. In this case, we cannot assimilate them to a torus. We will now show through drawing the relevance of these results for the cases of edged surfaces.

We must add the following reciprocal principle: the composition of one projective plane and one torus results in a 3-projective plane.

After, we shall formulate the more general theorem that is deduced from our principle theorem.

a' – General theorem

An unequal number $(2n + 1)$ of projective planes are equivalent to one projective plane plus $n$ tori; an equal number $(2n)$ of projective planes is equivalent to one 2-projective plane plus $(n - 1)$ tori.

a” - Demonstration of the general theorem

We demonstrate through ten drawings the intrinsic equivalence of the two presentations of figure 17.

From the first drawing of figure 17 that presents three Mœbius strips

Displace the link of one strap of the surface; pass a semi-twist, generating a new one
Cancel the even semi-twists that occurred directly because of the first transformation.

Extend this transformation. The same strap connects itself now further away from another semi-twist, which generates a new semi-twist on the strap.

Now, there are two semi-twists on the strap that form part of our surface depending on another connection.

Cancel this pair of semi-twists, since we are only considering this equivalence in an intrinsic manner.

Here, a transformation of immersion of the surface makes the strap pass over the other strap.

in order to reduce the mode of fastening this first strap even further.
Now displace the linkage of the twisted strap, which includes the latest semi-twist of this surface

Exchange the exterior zone making the twisted strap pass over the figure. This transformation does not create new semi-twists.

Fig. 18

3. Presentations

a₁ – Soury’s great sphere

A non-edged topological surface is a sphere upon which is connected 0, 1 or 2 projective planes and a multiplicity of tori or none at all.

For one surface of this nature as many holes can be added as one likes in order to obtain a edged surface.

Any topological surface is a grand sphere provided with zero, one or two projective planes (see the general theorem), a multiplicity of tori, possibly null, and a multiplicity of holes or none at all.

It is then possible to index a topological surface by three numbers:

- p : number of projective planes, p equal to 0, 1 or 2;
- q : number of tori, q is a positive integer;
- s : number of holes, s is a positive whole.

An edged topological surface is a pierced great sphere (a hole) provided with 0, 1 or 2 projective planes, a multiplicity of tori, possibly null, and a multiplicity of supplementary holes or none at all. An edged topological surface will be indexed by means of three numbers, p, q, r; the latter being the number of holes that are added to that of the first pierced sphere. It is therefore less by one unit than the number of holes s for any surface (r = s – 1).

a₂ – Griffith’s schemas

Following Griffiths—to which one must be refered to for the demonstrations of the previous
results—, we give a presentation of the theory of edged topological surfaces (made on one side of the disc, equivalent to the pierced sphere).

With the exception of the disc, which seems to fulfill the role of a neutral element for the composition of surfaces, we associate any single topological surface with a triplet of numbers \((p, q, r)\), as we just finished saying in the previous section, and a P.Q.R. Schema.²

\[
\begin{align*}
(0, 0, 2) & \quad \text{2 pierced discs} = \quad \text{a sphere of 3 holes} \\
(0, 2, 0) & \quad \text{2 pierced tori} = \quad \text{1 pierced double torus} \\
(0, 1, 1) & \quad \text{1 pierced torus} + \quad \text{1 pierced disc} = \quad \text{1 torus of 2 holes}
\end{align*}
\]

Fig. 19

The pierced disc corresponds to the \(r\) number, and serves to count the number of holes in addition to what is necessary for our presentation of surfaces by means of drawing the submersion of these surfaces.

The number of toric parts appears like other such likewise pierced tori; it corresponds to the \(q\) number.

\(a_3\) – Various complements to our presentation of the theory of intrinsic topological surfaces

These complements constitute the aspect of this theory that interests the greater part of the work

² Griffiths adopts a correspondence between the letters \(p\), \(q\) and \(r\) and the surfaces of different genuses, which are hardly distinguished in comparison with ours by a circular permutation.
Etlin's translation of *Fabric* - 8/11/9 – circulation is prohibited without my permission - (pp. 77-97)

of mathematics that is occupied with topological surfaces. Those ramifications conceal, each one by its manner, the rule of structure that we want to underline, which do not procure but rather utilize their results in view of treating a diversity of more classical, general problems. Because of this, we can say that the structural trait in question is forgotten.

· *The identifications of spherical polygons*

There exists another presentation of intrinsic topological surfaces, thenceforth classic among French mathematicians due to its adoption by the professor H. Cartan.

The theory of topological surfaces can be presented by the identification of the edge segments of planar polygons provided with an appropriate orientation.

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![The sphere](image1.png) ![The torus](image2.png) ![The projective plane](image3.png) ![The Klein bottle](image4.png) 

Fig. 20

In the next chapters we will get back to encountering this presentation of intrinsic topological surfaces and, thanks to our extrinsic reading, we will show its equivalence with the presentation that we make here in terms of surfaces that would have at least one hole.

· *Morse's theory*

In addition the theory of topological surfaces includes Morse's theory, which we are not concerned with. One must point out that this theory seduces idealist afficionados, enamored with differential geometry, due to its aspect which brings it closer to classical mechanics and its apparently greater refinement. But to this we prefer our structural exercises with regard to invariant rules that do not treat the relation with a unique standard domain which would be already numerical or algebraic.3

· *The metamorphoses of surface pavings*

In a more recent fashion, C. Léger and J.-C. Terrasson added an important chapter to the theory of topological surfaces [9]. Coming after Coxeter, they wrote the reduced play of metamorphoses of surface pavings, thus consummating the intuition of this great mathematician. Their result can be drawn in extension, by means of holes, in our presentation of the theory of surfaces thanks to our extrinsic reading of dimension, as we show in chapter IV with respect to imaginable holes.

3 *Essaim*, p. 149
The advantages of our presentation

Each surface that would have at least one hole has the advantage of being submergible in $\mathbb{R}^3$ in our drawn presentation.

It is possible then to effectuate a presentation of it without singularity (a presentation of the thing itself), that situates it in the classic theory of topological surfaces. The fact of privileging the surfaces that would have at least one edge component allows therefore for a drawing (Griffiths' schema) of each considered surface in a precise manner. This schema substitutes for a triplet of numbers $(p, q, r)$, however we can read this triplet in the schema, and this presentation can be simpler for an inexperienced reader, for those who lack the intuition of how it works.

· The case of non-orientable non-edged surfaces under these conditions

It is true that surfaces that have at least one hole do not include the totality of all that we can realize, according to our principles of assemblage, in a space of whatever dimension.

In order to grasp all surfaces (manifolds of dimension two) by this theory it is not necessary to go much further than dimension four. This property shows already the importance of the notion of codimension. This extrinsic notion is the difference (subtraction) between the dimension number of a manifold and that of the space in which it is submerged. Some constructions, to give results such as a non-edged surface that respects the principles of this theory, are enclosed only within the space of dimension four.

This is about non-orientable surfaces, those which imply there being at least one Mőbius strip.

In general, the presentation of these particular cases are made by immersing them in the space of dimension three, that is to say, generating singularities (of immersion) that contravene our second principle of assemblage. These singularities of immersion are lines of multiple points (see the Appendix, p. 304).

Whereas we can obtain a correspondence in dimension three with all surfaces, realizable with our scraps of fabric, in agreement with our two principles, in a space of whatever dimension. It suffices to make a hole in it utilizing our primary observation in reverse. That is to say that to each non-edged surface corresponds a pierced surface that has, therefore, one edge component. We can submerge it as a singularity, but one should not believe that this is exactly the same object in question, given that there is a passage from one non-edged surface to a surface that presents an edge. No one can concede that these are the same thing, unless one is confused.

This presentation shows the difference that should be made between rigor and exactitude. To be rigorous, we should say that there is a structure to non-edged surfaces that necessitates the codimension two and that the singularities of immersion (the line of multiple points) or of submersion (at least one hole) evades this need to make believe that it is possible to present surfaces in codimension one.

In the case of singularities of immersion, the singularity allows one to think that codimension two is not necessary for presenting the non-edged surfaces. We have the testimony of many aficionados who take the cross-cap or the model of the Klein bottle through the projective plane or the 2-projective plane. This harms them because they confuse a representation with the thing itself. This way they find themselves at an impasse before the structure of this thing only to benefit representation. This structure demands, in order to be identified, without believing to capture its object—with the gaze, with the hand—under the form of a model, to realize some effective actions within it, such as permutations, trajectories, colorings (see the Appendix, p. 303).

For the case of singularities of submersion, preferred here, we do not aspire to treat in codimension one the non-edged surfaces: with this we respect the necessity of codimension two for
non-edged surfaces. By means of the hole imaginable as a rupture of surface, we eliminate the singularities of immersion that contradict the definition of surfaces in our presentation, which we remain within without bearing pretensions to exhaustivity. We proceed with such a form because this presentation bears in its bosom a formulation of the theory of surfaces that underlines the rule of structure that we want to render an account of. In order to grasp the totality of the scope included within the theory of topological surfaces, we see ourselves obliged to specify what we are making thanks to the submersions of non-edged surfaces.

It can seem paradoxical that we chose a presentation that makes exact representations, whereas on the other hand we insist on the conditions necessary for the definition of a category of objects. The paradox is resolved when we say that one must choose among these points of view and not forget any of them.

4. Conclusion

We associate to each edged surface a schema of Griffiths, called P.Q.R., that corresponds, from our four basic elements, to the triplet (p, q, s) of numbers recognized by Soury, who had counted from that \( r = s - 1 \).

We would give some examples.

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\[ p = 1, q = 2, r = 2 \]

\[ p = 2, q = 1, r = 1 \]

Fig. 21

As we were indicating at the beginning of this chapter, in fact there are no more than three basic elements: it is for this reason that in this notation this is about a triplet. But a difference remains between an equal number and an odd number of projective planes, in accordance with what is deduced from the general theorem. This way it is understood that we spoke of four basic elements.
One must not forget that, according to the general theorem of this theory, the case \( p = 3, q = 1, r = 2 \), is converted into \( p = 1, q = 2, r = 2 \).

\[ p = 3, q = 1, r = 2 \]

\[ p = 1, q = 2, r = 2 \]

Supposing that \( p \) always can be reduced to 1 or 2, since we can eliminate Möbius strips by pairs (here one pair) and replace them by as many pierced tori as pairs of Möbius strips have been eliminated (here one pierced torus, or being a pierced toric part).

The case \( p = 4, q = 0, r = 1 \) is converted, in accordance with the general theorem, into \( p = 2, q = 1, r = 1 \).

\( (4, 0, 1) \)
Thus showing in its great lines the theory of topological surfaces, we return to the presentation of invariants that allow for recognizing a same surface through different presentations (assemblages), and to distinguish the surfaces that are not identical.

As we continue, we will carry on with the approach of an ancient preoccupation essential to this theory, somewhat disregarded due to its consumation. We are referring to the question of the cuts that can be made on these surfaces. As the invariants show, the trajectories effectuated on the surface of this assemblages of scraps of fabric produce separations (non-connectivity) characteristic of the structure of these surfaces. This allows us to follow Dr. Lacan on his plays of dimensions, when he says that surface is cut (Radiophonie, p. 70; “32”; L’Étourdit, p. 27).

The following chapters occupy themselves, in each elemental case, with the different possible presentations of these assemblages of fabric, and with the cuts (surfaces) that we can made on them.