may be

May be

The notes continue those for October and November. 

Notes for the month have been taken of 29. Nov 26.
Background.
The present notes are not organized as a final write-up, a more aesthetic order is obviously called for a failure organise-up. For instance, it is reasonable to start reading Lemma 6 on page 123. The proof of Lemma 6 is not complete as it is—but only in an inessential manner. The proof involving 1-simplices is, I think, sufficiently suggestive for what happens for n-simplices for $n \geq 2$. Of course, this situation is only temporary; I am giving out these notes as compensation for my failure of not giving the announced talk Nov 26.
\[ \Delta P \equiv (\text{fix}) \]

\[ \Delta P \equiv \text{post}(\text{fix}, P) \]

For \( P \in \text{post}, \Delta P \] is the set of all \( P \) such that \( \Delta P \] is the set for which

\[ (-1) \cdot \Delta P \]

\[ \text{Set} \Delta P \]

\[ \text{Post} \Delta P \]

Defining further \( \Delta -1 : \text{Post} \rightarrow \text{Set} \) as the composition of \( \text{Post} \) with \( \text{Set} \) and \( (\text{fix}) : \text{Set} \rightarrow \text{Set} \)

Every \( \text{Post} \) is a poset of \( \text{Set} \) where \( \text{Set} \) is the poset of \( \text{Set} \) (small) category of disjoint \( \text{Set} \)s.

\[ \Delta \leq \text{post} \] is a subposet of \( \text{Post} \); inclusion \( \leq \) is a poset.

\[ \text{Post} \] is the category of partially ordered sets (\( \text{Pos} \)).

The simplicial set \( H(X) \) is

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10 Nov 22
The only non-identity map $f: 0 \to 7$ is $f(x) = x + 1$, hence $X = \emptyset$.

Moreover, for any $x \in X$, $\varphi(x) = x$ is a bijection. In the case $X = \emptyset$, the identity $\varphi$ is also a bijection.

Let $X = \{0, 1, \ldots, n\}$ for some $n \geq 1$. Then $
abla X \hookrightarrow \{0, 1, \ldots, n\}$.

In an abuse of notation, we may simply write $\nabla (D^+P)$. 2019 Nov 22
Consists of 4 components only:

\[ z \in X \text{ for which } \exists \delta \in \mathbb{R} (z \in X \Rightarrow \delta \leq z) \text{ and } |z| |z - 1| \leq \frac{1}{5} \] 

An X is a closed set if \( \forall \delta > 0 \), \( \exists \epsilon > 0 \) such that \( \forall \tau \in \mathbb{R} \text{ and } |\tau - 1| \leq \epsilon \Rightarrow \tau \in X \).

For each \( \tau \in \mathbb{R} \), \( \exists \eta > 0 \) such that \( \forall \delta > 0 \), \( \exists \epsilon > 0 \) such that \( \forall \tau \in \mathbb{R} \text{ and } |\tau - 1| \leq \epsilon \Rightarrow \tau \in X \).

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Therefore, X is a closed set if \( \forall \tau \in \mathbb{R} \text{ and } |\tau - 1| \leq \epsilon \Rightarrow \tau \in X \).
The significant examples.

For each $n > 0$, $\mathbb{N} = \mathbb{N} \times \mathbb{N}$, product in Poset.

As a set, $\mathbb{N} = \{(0, b) : b \in \mathbb{N}\} \cup \{(1, b) : b \in \mathbb{N}\}$

Here, we write $b$ for $(0, b)$, and $\tilde{b}$ for $(1, b)$. The order on $\mathbb{N}$:

$$\forall i, j \in \mathbb{N}, \tilde{b} \in \mathbb{N}, \quad (i, b) < (j, \tilde{b}) \iff i < j \text{ and } b \leq \tilde{b}.$$

This means that for $b \in \mathbb{N}$:

$$\quad b \leq \tilde{b} \iff \forall i \in \mathbb{N}, \tilde{b} \in \mathbb{N}, \quad (i, b) \leq (i, \tilde{b}) \iff b \leq \tilde{b} \text{ in } \mathbb{N}.$$  

and $\tilde{b} \leq \tilde{b}$: never.

For $n = 0$: $[0] = \{0 \to 0\}$

$$[1] = \{0, 1\}$$

$$[2] = \begin{pmatrix} 2 & \frac{1}{2} \\ \frac{1}{2} & 0 \end{pmatrix}$$
The non-denumerable cardinality of $[2]$...

$\mathcal{M} = \{ \omega \}$
\[ \forall \alpha \in \mathbb{P} - \text{find any } P_{\alpha} \]

above. The Grothendieck's theory is well-developed on this.

Let us prefer the more powerful view of a set as a plane

\[ \Delta \subseteq \Delta \times \Delta \]

in \( \mathbb{S} \).

This is because we will learn its use in some things as the product

\[ \Delta \times \Delta \]

applied to \( \cup \mathbb{Z} \).

\[ \Delta \times \Delta \rightarrow \Delta, \quad \text{Set} d' \]

\[ \text{the Frobenius } \Delta \rightarrow \Delta \]

\[ \begin{aligned}
\text{of } m \rightarrow (\Delta - \Delta \circ (\Delta - \Delta)) \quad \Delta \\
\end{aligned} \]

\[ \text{Remark: we will consider the set } \]
Define the free abelian group \( \text{Hom}(X, \mathbb{Z}) \) as the group of homomorphisms from \( X \) to \( \mathbb{Z} \).

The notation \( \text{Hom}(X, \mathbb{Z}) \) for the group of homomorphisms is used.

\[ \text{Hom}(X, \mathbb{Z}) \]
\[ \bigvee \{ f \in F \mid f \subseteq X \} = (X, H(\{ f \in F \mid f \subseteq X \})) \]

For all \( X \subseteq [m] \), \( X \leftarrow (\bigvee_{f \subseteq X}) \)

An \( n \)-simplex \( \Delta^n \) is a simplicial set.

\[ \bigvee_{f \subseteq X} \Delta^n = (X, H(\{ f \in F \mid f \subseteq X \})) \]

In short...
NB. In the context of group actions, we will require additionally that

\[ x \mapsto x^0 \sim x \]

We say cross-restrict if \( x \) is in a homology of \( x^0 \). 

\[ x^0 = x_0 \Delta \]

\[ x \Delta \]

\[ x \triangleleft [\cdot \cdot] \]
For any \( x \neq x' \), we have the identity

\[
\frac{X}{\sim} \cong [m] \triangleleft X
\]

\[X
\]

For any \( x \neq X \), we have the identity

\[
\frac{X}{\sim} \cong [m] \triangleright X
\]

\[X
\]
The conditions (1) and (2) are satisfied.

\[ H(X) \cong H(X/n) \]

An element \( x \in H(X) \) maps to \( [x] \in H^n(X) \).

Meaning:

Define the complex \( H(X/n) \) as follows:

\[ \begin{align*}
\text{Condition:} & \quad f \circ f = f \\
\text{Given} & \quad (\text{special case: } f = f) \\
\end{align*} \]

The minimal covering complex \( \text{given} \) is the minimal covering complex.
There are no physical in Post.

\[ T(1) = (1,1) \]

\[ T(0) = (0,0) \]

Define: \( T: \mathbb{F} \to \mathbb{F} \), \( T(x) = H(x) \), \( T^n \) maps \( H^n \).

\[ \forall x, \quad T^n(x) = H^n \]

Using \( H \) as a function, at least one in.

\[ \text{Condition (1): This refers to } f \text{ alone if not inverted.} \]
The homomorphism $x: X \to X_1$ is the identity homomorphism.

Expression: Conjunction (so that the HT - and of)

The function $\triangledown - 2: \text{post} \to \text{set} \triangledown$ was applied three times.

\[ f^*_x \circ \triangledown_{\text{post}} \circ \triangledown_{\text{set}} \circ \triangledown_{\text{int}} \]

\[ \forall x \in \text{int} \circ \triangledown_{\text{set}} \circ \triangledown_{\text{post}} \circ f^*_x \]

\[ \triangledown_{\text{post}} \circ \triangledown_{\text{set}} \circ \triangledown_{\text{int}} \]

The diagram in set $\triangledown$ follows:

\[ \text{H}(X/Y) \]

\[ \text{def} \]
It is easy to check that the subgroups $H(x/n)$ act freely with a single orbit $\{x, x^n \}$ for $x \in X$. Then $x = f(x^n)$. Condition 2 is that $X$ belong to the set $H(x/n)$. Condition 2: For the group $X$ belong to the set $H(x/n)$. Conditional 2.
By a priori calculation,

\[ H(x/n) \rightarrow H(x/n) \]

Thus, in view of \( H(x/n) \), by the very definition of \( H(x/n) \), the restriction of \( H(x/n) \) to \( \mathbb{N} \) is:

\[ f^n \uparrow \]

\[ X \]

\[ f^n \uparrow \]

This is the ground assumption of the set of things (theorems) hypotheses. For

\[ \exists \]

\[ f^n \uparrow \]

\[ \mathbb{N} \]

Special case: \( H(x/n) \) for
Proof: Easier

\[ H(x/y) \leftrightarrow H(u/n) \]

\[ \text{Claim: } f \text{ is a Kan fibration.} \]

Then \( H(f) : H(x/y) \leftrightarrow H(u/n) \) is also a Kan fibration.

1) Assume that \( f \) is a Kan fibration. Suppose we have \( X \xrightarrow{f} Y \), \( f = f'. \) Then...
First, think of $I$. For $I^t_t$.

For other $K$, think of $I_t^t$.

Think of $I_t^t$.

A short ad-hoc lemma:

Lemmas, notation.
In words:

Let the functions $g, h: \mathbb{R}^n \to \mathbb{R}^m$ be such that $g \circ f = h \circ f$.

For all $y \in \mathbb{R}^m$, let $I(y)$ be the indicator function of the set $\{x \in \mathbb{R}^n : g(x) = y\}$.

Then, for all $y \in \mathbb{R}^m$, we have that $I(y) \in T \subseteq I_T(9)$. Therefore, the proposition holds.

Proof:

Let $y \in \mathbb{R}^m$. Then, $I(y) \in T \subseteq I_T(9)$.

Given that $g \circ f = h \circ f$, we have that $g = h$ almost everywhere.

Thus, for all $y \in \mathbb{R}^m$, we have that $I(y) \in T \subseteq I_T(9)$.

In words:

Let the functions $g, h: \mathbb{R}^n \to \mathbb{R}^m$ be such that $g \circ f = h \circ f$.

For all $y \in \mathbb{R}^m$, let $I(y)$ be the indicator function of the set $\{x \in \mathbb{R}^n : g(x) = y\}$.

Then, for all $y \in \mathbb{R}^m$, we have that $I(y) \in T \subseteq I_T(9)$.
We show that \( t \in \mathcal{H} \). This will suffice.

\[
\begin{aligned}
\vee & \quad S \\
\downarrow & \\
\rightarrow & \\
\end{aligned}
\]

We have

\[
\begin{aligned}
\downarrow & \\
\rightarrow & \\
\end{aligned}
\]

\[
\begin{aligned}
\downarrow & \\
\rightarrow & \\
\end{aligned}
\]

\[
\begin{aligned}
\downarrow & \\
\rightarrow & \\
\end{aligned}
\]

The composition \( N \leq f \), in a well-ordered |

\[
\begin{aligned}
\downarrow & \\
\rightarrow & \\
\end{aligned}
\]

Recall: \( X \leftrightarrow Y \in \mathcal{C} \) (weak equivalence)
\[ \text{Time} = 0 \]

Consider the countable sequence \( \emptyset \) on the empty topology \( \emptyset \), and another countable sequence \( \emptyset \).

By Lemma 1, \( \emptyset \) is countable in the topology \( \emptyset \).
Now, use Lemma 3 to:

Claim: done

\begin{align*}
\text{temp} &= \text{a} \\
\text{temp} + 9 &= 29p \\
\text{Thus, temp} &= \text{cp}
\end{align*}

\[ p_9 = \text{cy} \]
Lemma 5

The complete set of sets \( \mathcal{W} \) is

\[
\mathcal{W}, \mathcal{W} \in \mathcal{W} \leq \mathcal{W} \text{ if } \mathcal{W} \in \mathcal{W}.
\]

Let \( \mathcal{W} \) be any complete set of sets. \( \mathcal{W} \) is

\[\text{(using Lemma 2 and 3)}\]

\[\text{Lemma 5}\]

It follows that in every set \( \mathcal{W} \).

\[\mathcal{W} \leq \mathcal{W} \]
By definition, W. (Lemma 5)

\[ W_1 W_2 = \mathcal{G} \in W \]

By Lemma 3, \( f \) is irreducible.
Lemma 2.6. If $f$ is a Kan fibration and a weak equivalence, then it is a trivial fibration.

Proof. Suppose $X \xrightarrow{f} Y$. (Let $\text{Kon}: K \rightarrow \text{kon}f$)

\[
\begin{array}{c}
\downarrow \\
Y \\
\downarrow \\
X
\end{array}
\]

Lifting 0-simp's: (by induction on $z_0 \in Z_0$, we prove that $\exists x_0 = y_0$

\[
\begin{array}{c}
\downarrow g \\
Z
\end{array}
\]

can be lifted along $f$: there is $x_0 \in X_0$ s.t. $x_0 \xrightarrow{f} y_0$. Since $h$

is surjective on $Z_0 \rightarrow Y_0$, this will show that $f$ is surjective on

$X_0 \rightarrow Y_0$.

Base case: $z_0 = g x_0$. Then $x_0 \xrightarrow{f} y_0$ ($f = h q$); done.

[Induction statement: $P(\alpha)$]
In the context of the given function $f$, we have:

\[ y_0 \xrightarrow{1} y_0 \]

Therefore, $y_0 \xrightarrow{x_0} 1$ is s.t.
We perform the induction on $\pi_1$. To the very precision:

Since $G 	t$, then \( y_0 = \infty \), \( y_0 \rightarrow y_f \), \( y_f \rightarrow y_0 \).

Let \( \gamma_0 = \gamma_0 x_0 \), \( \gamma_\infty = \gamma_\infty x_\infty \). Then \( \gamma_0 \rightarrow x_0 \), \( x_0 \rightarrow x_\infty \).

So, recall \( x_\infty \rightarrow x_0 \), \( x_0 \rightarrow y_0 \).

\[ y_0 \rightarrow y_f \text{ work: } \quad \text{Thus on } y_0 \rightarrow x_0 \]

Letting $\bar{\gamma} = \gamma_0 x_0 \in X$, \( \gamma_0 = f(x_0), \ y_0 = f(1) \).
$2 \in \mathbb{Z}$

Assume $2 \in \mathbb{Z}$, then by closure of addition, $2 + 2 = 4 \in \mathbb{Z}$.

Yet again, $\mathbb{Z}$ is a commutative ring, since $D$ consists of those numbers.

Let's prove $\mathbb{Z}$ is a field:

In other words, if $a, b \in \mathbb{Z}$, then $a + b = b + a$.

As with the two previous steps, we can conclude that $\mathbb{Z}$ forms a field.

Therefore, $\mathbb{Z}$ is a field.
P(\bar{x}_2) \rightarrow P(\bar{y}_1)\) are true. We already know that \(y_2 = h \bar{x}_2\), \(y_1 = h \bar{y}_1\) and \(\bar{y}_1 = \bar{h} \bar{x}_2\). Thus, we can obtain \(y_1 = \frac{y_2}{\bar{x}_2} \bar{y}_1\), \(y_0 = \frac{y_1}{\bar{y}_1} \bar{y}_0\) and \(\bar{x}_2 = \frac{\bar{y}_2}{y_2}\), \(\bar{y}_0 = \frac{\bar{h} \bar{y}_2}{y_2}\). Note that if \(\bar{y}_1 = \bar{h} \bar{x}_2\) did not hold, \(\bar{h} \bar{x}_2 = \bar{y}_1\) may have nothing to do with \(x_2\) and \(y_2\). Only \(z_1\) and \(y_2\) can be equal to \(f_1\) if \(z_1\) and \(y_2\) are true. The situation hypothesis itself must be true.
Now, show that \( f(x, y) = \frac{1}{x^2 + y^2} \) is finite for all \( x, y \in \mathbb{R} \).

We have that \( f(x, y) = \frac{1}{x^2 + y^2} \) which shows that \( P(z) \) is true.

In particular, \( f(1, 1) = \frac{1}{1^2 + 1^2} = \frac{1}{2} \).

By the Heine-Arnold-Frenkel, hence \( f(x, y) \) is continuous.

Similarly, for \( x \in \mathbb{R} \), let \( \epsilon > 0 \). Then, \( |f(x, y) - f(x, 0)| = \frac{1}{x^2 + y^2} \leq \frac{1}{x^2} \) if \( |y| \leq 1 \).

Thus, \( \lim_{y \to 0} f(x, y) = f(x, 0) \) for \( x \in \mathbb{R} \).

Since \( \frac{1}{x^2} \to 0 \) as \( x \to 0 \), \( f(x, 0) = 0 \) if \( x \to 0 \).
However, for the induction, we will write a series from $F(z^{*})$.

The hypothesis $x_{0} = x_{0} + y_{0}$ for $f$ as described

S.t. $y_{0} = y_{0}$, $x_{0} = x_{0}$, $F(z^{*})$ is true. This means

$z_{0} = z_{0}$, $y_{0} = y_{0}$, $x_{0} = x_{0}$, $F(z^{*})$ is true. Thus, $y_{0} = y_{0}$.

In other words, if $F(x, c) = c$, 0 for $y = b, x = y$ and that $y

we must $x_{0} = x_{0}$ for $y = b, x = y$. We then $y_{0} = y_{0}$, 0 for $y = b, x = y$. Thus, $y_{0} = y_{0}$.