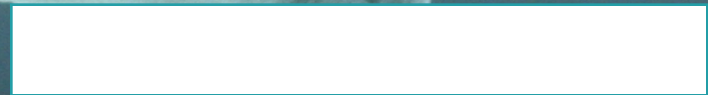# Suspended on a Road from Here to There

Pravin Sathe

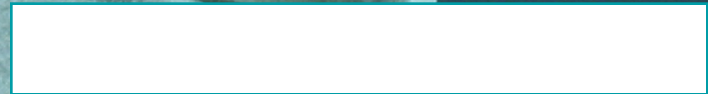B.A. Politics and Economics
New York University
May 2003

Submitted to the Interactive
Telecommunications Program,
Tisch School of the Arts,
in partial fulfillment of the requirements for
the degree of
Master of Professional Studies at
New York University

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Suspended on a Road from Here to There

Pravin Sathe

Abstract

"Suspended on a Road from Here to There" is a series of sculptures that explores the clash of cultures, and my own cultural displacement in the city of my childhood, Bombay, now called Mumbai, through the lens of two languages, Marathi and English. The three sculptures, "Encounter," "Bomबई," and "Cowherd", employed MEL scripts in Maya and were realized with a Z-Corp rapid prototyping printer. I chose rapid prototyping as the method with which to realize these works because of the cost advantage, both in terms of time and price, in creating multiple works and the complexity in form of each piece. The sculptures are intended to be viewed as a triptych, as each informs the other and creates a metaphorical circle, analogous to the "chakra" on the India flag. As a whole, this thesis work creates a physical representation of lessons learned from the past and a hope for a more generous spirit in our descriptions of one another as we move into the future.

Suspended on a Road from Here to There

Pravin Sathe

The following people served as readers for this thesis

Thesis reader

Nancy Hechinger
Teacher of Communications
Thesis Supervisor

Acknowledgements

Many thanks go to the people that helped during my studies at ITP and in the realization of this thesis.

To Alan Michaels for invaluable tutoring in Maya. To Shelley and Alex for creating a seamless process for printing. Many thanks to the GSO for the tablet without which there would be no smooth curves in these sculptures. Professors Toru Hasegawa and Mark Collins who started this process by introducing me to rapid prototyping. Professors Daniel Rozin, Dan O'Sullivan, Todd Holoubek, Tom Igoe, Daniel Shiffman and Marianne Petit for fostering such a creative environment. Red Burns for being a benevolent dictator and making things easy, we are all indebted to you for the freedom we have.

Robert Tessler for starting a Post-Bac program at the same time, it's good to have a partner in crime. Mary Guiteras and Dodd Loomis for keeping me laughing. To all of my friends for accepting my retreat from the world but never forgetting to check in.

To Professor Nancy Hechinger for her steady hand and sharp tongue during this harrowing yet exciting process.

Constance De Jong for her thoughtful comments on the work and the wonderful career advice, the advice continues to be invaluable. Tony Oursler for giving me a chance at 18 years of age and being an artist's artist. June Adinolfi for giving me not only the technical skills to draw and paint but to really see the world. I hold you responsible.

A special thanks to Anna Plunkett for her persistence in forcing me out of our apartment while conducting this work to enjoy the city we live in. This research is a testament to your efforts.

To my grandparents whose wit and humor has kept them close while living far away.

Finally, to my parents whose belief in honor, hard work and family has produced any successes I have had in the past or will have in the future. I am forever indebted; I hope this thesis makes you proud.

Table of Contents

1   Introduction

1.1   Motivation

The motivation for my thesis and much of the thesis research has been informed by the cultural clashes in Mumbai over the last 20 years. The recent history of India and specifically the city of Mumbai has been a decidedly mixed bag. During the past 20 years the country's residents have experienced a regeneration of the kind of physical and emotional devastation that accompanies religious violence. Yet even amidst that violence, the country has achieved monumental economic growth and social evolution. The middle class which now numbers approximately 250 million, or 22% of the population demands a "Western" lifestyle that once only the wealthy could afford. By current growth trends, by 2025, 50% of the Indian population will be entrenched middle class, a phenomenal achievement considering that in 1990, 90% of the country lived on a dollar a day (Das).

But simmering underneath this rapid expansion, in cities across the country (and especially in Mumbai) are the religious tensions that have existed since the partition of the British colony in 1947. These tensions flared into large-scale violence in 1992-1993 over the destruction of Babri Masjid, a Muslim mosque, in Ayodhya by Hindu radicals. The Bombay riots of 1992 - 1993 in it's intial phase began with a Muslim backlash to the destruction of the mosque in Ayodhya. Hindus, retaliating after the deaths of workers in South Bombay began what is the second phase of the riots in 1993. All told the death count was estimated at over 900 with Muslims accounting for the majority of those killed. In March 1993, two months after the last of the riots, a series of bombings coordinated by D-Company, a criminal syndicate, killed over 200 people. The bombings, thought to be reprisal killings for the systematic targeting of Muslims by Hindus and the police during the second phase of the riots, created a lasting demographic shift along religious lines in Bombay (Kaur). With a continuation of smaller attacks on the population in 2003 and a fueling of Hindu nationalism, this thesis research was conducted with
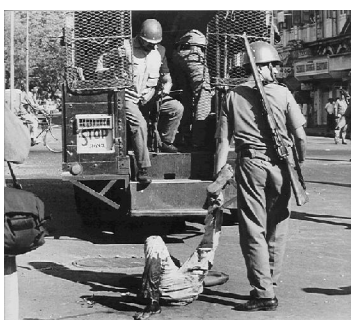
A photograph from the 1992–1993 Bombay riots from The Times of India (no attribution)

those events in mind.

The language used in the city - both the choice of dialect and the words and phrases - by elected officials, the police, gangs, media and citizens played a pivotal role in shaping the events of the 1992-1993 riots and the resulting bombings.

This series of sculptures is both deeply personal while attempting to speak to a larger audience. My primary goal as an artist has been to reveal many of the emotions and ideas that lie hidden just below the surface of the images and text we read on a day-to-day basis. At ITP I have explored just that through several of my works: the anthromophorization of airline sickness bags ("Detritus (III -XIV)"), a video series that illuminates the uniformity in both presentation and content in our mainstream media ("How You See It"). The motivation behind my thesis has been to continue in that vein and to reveal the emotions as they resonate today from both an insider's and outsider's, and I am both, perspective of the city of my childhood. Through the lens of language, English and Marathi, my experiences of a pre and post riot Mumbai - then called Bombay - has yielded a view of two seemingly disparate entities. As Israeli journalist Michael Elkins wrote,

> "We can go on like this - recreating and reflecting
> the existing images of each other, and reflecting these
> reflections - endlessly and hatefully - as in a hall of
> mirrors. The result will be all of us...will be locked in
> endless and bloody agony in a hall of mirrors of our
> own creation and from which there is no exit.
> Or we can begin by adopting a certain integrity - a
> certain generosity - in the use of language.
> That's not too hard. It's the easiest of the hard things
> that must be done if we are ever to come to peace with
> one another, and so with ourselves."
> (qtd. in Fisk 401)

"Suspended on a Road from Here to There" reflects that sentiment - creates a physical representation of my relationship to those two 'cities' and displays both the horrors and generosity of language in the

context of today's Mumbai.

1.2   This Thesis and the Interactive Telecommunications Program (ITP)

Much of what is unique to ITP is part of the thesis itself; namely incorporating technology in service of the the final work. The culture of "play," as Red Burns describes it, is fundamental to the advancement of ideas as they relate to technology and our use of it. The environment promoted by the program allows for a great degree of freedom that can be at once daunting and liberating. That freedom extends to materials and processes as well as forms of expression. Sculptures and drawings are given equal weight with screen based works and interactive objects. ITP has allowed me to translate a single idea through a multitude of mediums, using a multitude of techniques. I was never asked to choose a particular thematic path or a single medium. For this reason, I do not believe that "Suspended on a Road from Here to There", employing traditional drawing, 3D rendering software and rapid prototyping could have been created anywhere else.

1.3   Thesis Structure

The thesis presented here, a series of sculptures, explores the emotions and events in the city of my childhood, Bombay – now called Mumbai – through the lens of two languages, Marathi and English. Chapter 2 gives a look at sculptural, textual and typographic influences that were influential in the conceptualization of the work. Chapter 3 is devoted to the work itself with a concentration on specific influences for each, the rationale for the materials and colors used. Chapter 4 details the process of creating the sculptures for "Suspended on a Road From Here to There". Chapter 5, the concluding chapter, is a rumination on how these works speak to my connection to the city of Mumbai today and how this work will proceed from a conceptual standpoint.
Further documentation of these sculptures, including some of the

early prototypes can be found on the Internet at
http://pravinsathe.com/suspendedonaroadfromheretothere

2   Background

2.1   A Survey of My Artistic Influences

We can trace sculpture as far back Austria, some 25,000 years ago to the Venus of Willendorf. That sculpture to me is a perfect analogy to the primitives used in modern modeling programs such as Maya with the shape and structure of most sculptural works ("Venus of Willendorf: Exaggerated Beauty"). A round head, bulbous breasts and presumably pregnant womb are essentially spheres artistically molded and shaped to represent a whole greater than it's parts. Each of the pieces in "Suspended on a Road from Here to There" began with such primitives.

From a more contemporary perspective, since 1995, many of the large scale works artist Anish Kapoor has created "...have hinged on the viewer's gaze and of the dichotomy between interior and exterior in abstract, monolithic forms" (Harris). Kapoor's forms also speak to the idea of addition by subtraction. Or as Kapoor describes it, "The idea that if I empty out all the content and just make something that is an empty form, I don't empty out the content at all. The content is there in a way that's more surprising than if I tried to make a [*sic*] content. So, therefore, the idea that subject matter is somehow not the same as content" (qtd in "Descent into Limbo"). A peer of Kapoor's, but one who explores the relationship of the individual to society, Do Ho Suh has realized some of the most powerful works of the last 15 years. In "Seoul Home/L.A. Home..." he evoked the space and tranquility of his home in Korea through a transportable, hanging sculpture made with cloth and thread. A metaphorical copy of the actual structure, Suh described the idea in an interview on Art:21,

> I would say the Korean House project started from
> this need to fulfill a certain desire when I graduated
> from RISD. I was in New York for a year before I
> went to grad school. I was living on 113th Street, near
> Columbia. And my apartment building was right
> across the street from the fire station. And it was re-

Anish Kapoor's "Marsyas," (2002) erected at the Tate Modern in London, England.

A photo of Do Ho Suh's "The Perfect Home II" (2003)

ally, really noisy and I couldn't sleep well. And I was thinking when it was my last time to have a really good sleep. And that was in a small room back in Korea... The experience was about transporting space from one place to the other. A way of dealing with cultural displacement. And I don't really get homesick, but I've noticed that I have this longing for this particular space and I want to recreate that space or bring that space wherever I go. So the choice of the material, which was fabric, was for many reasons. I had to make something that's light and transportable. So something that you can fold and put in a suitcase and bring with you all the time. ("Seoul Home/L.A. Home")

The driving motivation behind "Suspended on a Road from Here To There" was the idea of "cultural displacement." Mr. Suh's forms were used as a starting point in realizing this thesis research. From that starting point I was then pushed the idea to production techniques that would evoke both the sublime beauty of the object as well as the meaning it hopes to espouse.

I had the good fortune to work with Tony Oursler, a video artist, on numerous projects and in an interview I conducted with him for *NY Arts Magazine* he spoke about the importance of language in his sculptural video work,

Tony Oursler's "untitled" (2005)

A lot of people forget about the linguistic side of my work and sometimes I would like to forget about it. If you have a linear story, even if it is just a spoken work, you might as well be sitting in a movie theatre, and I am very precise about the difference between an art object and a movie. One of the things I find unique to an art installation is that it is perpetual; it doesn't have a beginning middle and end. So I dispensed with that notion and I worked with different techniques to develop my language. I studied stream of consciousness writing and poetry, and I looked into the surrealist strategies of random text development and statements from the MMPI. From these influences I have cultivated many different methods in which to write text

for my work over the past ten years. At the moment,
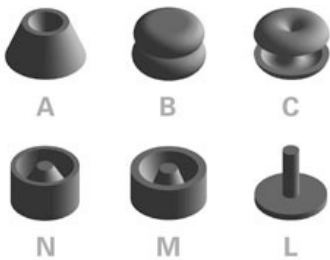my text sounds like 50s beat poetry. (Sathe 34)

Many of his recent drawings have also incorporated text and letter-
forms. They too have influenced the choice of language as an under-
pinning for "Suspended on a Road from Here to There.

2.2   Maximum City by Suketu Mehta

Perhaps the most significant influence on this work is neither
visual nor sculptural but the wonderfully written memoir, Maximum
City by Suketu Mehta. Like Mr. Mehta, I have lived away from
Mumbai for so long it has become an entirely different city from the
one I remember as a child. And like Mr. Mehta, when I returned to
the city after the 1992-1993 riots and subsequent bombings I was
amazed at the cultural and emotional fracture of the social fabric.
Bombay was a truly cosmopolitan city, with multiple languages
regarded equally and multiple religions coexisting peacefully. The vio-
lent events of the early 1990's had torn all of that apart, and a certain
fear had been instilled in both Muslims and Hindus. "Suspended on
a Road from Here to There" speaks to that fear.

2.3   Dimensional Typography

The extrusion, rotation, tubing and other methods of creating
three dimensionality out of two dimensional typographic forms was
beautifully presented in Dimensional Typography by J. Abbott Miller.
As Miller writes,

> We have interpreted historic and contemporary type-
> faces by transporting their two-dimensionality into
> volumetric and planar forms....The letters represented
> here are snapshots of "objects" constructed in three
> digital environments: each letter could be potentially
> "output" as a three-dimensional artifact from the
> information used to describe them digitally. However,
> their physical manifestation is not a final objective:
> their exact role in either physical or virtual environ-

*A portion of "Univers Revolved"
by Ji Lee. From the book
Dimensional Typography by
J. Abbott Miller*

17

ments was braketed [*sic*] off from their conceptual and formal development. (8)

"Suspended on a Road from Here to There" builds on this conceptual framework - using similar digital solutions - to realize the typographic letterforms in tangible terms and embed meaning in shape, material, color and spacial arrangement.

# 3 Suspended on a Road from Here to There

3.1 "Encounter"

Language is neutral but can play a vital role in inspiring greatness or villainy. For every quotation we take from great orators to inspire our actions to create meaningful change in society there are as many used to engender distrust, anger and hatred. Language is neither good or evil. But the meaning of a word in one language can mean something completely different in another. To avoid an incorrect interpretation of a word across languages, multinational corporations create local "culturally" sensitive marketing departments or localized websites. This has not prevented these same companies from experiencing personal relations nightmares (Riquier).

While researching the history of Mumbai after the 1992-1993 riots I came to find numerous articles about the use of Mumbai Police "hit" squads. These squads had been created to deal with the gangs that had formed. They had been targeted as being responsible for the 1993 bombings. These incidents, coined "sanghattanem" in Marathi, were the equivalent of the English word encounter. "Encounter," as defined by dictionary.com is 'to come upon or meet with, especially unexpectedly' ("encounter"). However in Marathi, because of the tactics by the police it has come to mean the torture and killing of innocent civilians. I created "Encounter" in response to the differences in meaning from the English to the Marathi of the same word, the actions of the Mumbai police, and the fear felt by ordinary citizens during and after the riots.

Each syllable of the Marathi word has been collided with it's English equivalent. The resulting Marathi letters have the English word embedded in the negative space of the sculpture, which represents the impact of language on the individual. The individual Marathi letters have been deformed and duplicated to look like people running and to represent the mobs that fled in the wake of both the bombings and riots. I chose to make each letter the same color in "Encounter" to enforce the idea of the connection between individual members

"Encounter"

20
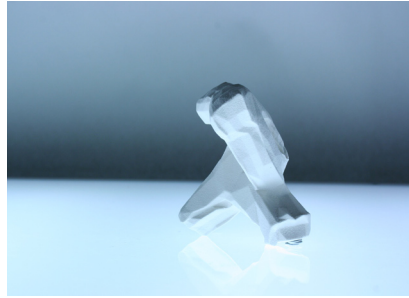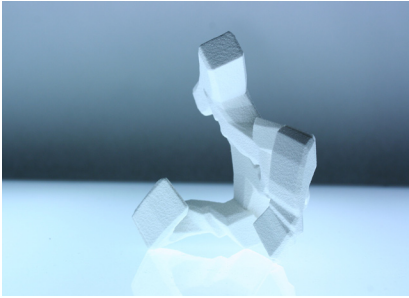
Individual letters from "Encounter"

and their society. Moreover, because of the intricacies of the forms themselves, I felt the use of varying colors would add a layer of information that would complicate and obscure the work. Viewed from different angles, viewers will be able to make out the entire Marathi word, as well as the indentation of the English letters on each Marathi syllable in the negative space.

3.2 **"Bomबई"**
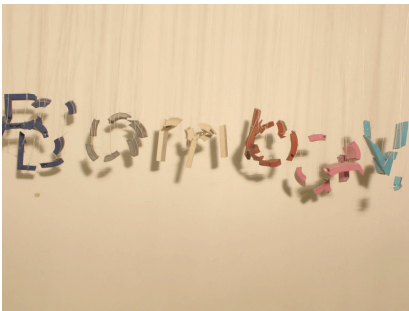
"Bomबई"

The ground on which Bombayites walk today did not exist until the 1800's when major civil engineering projects, initiated by the British, transformed seven archipelagos into the land mass that defines it's modern boundaries. The city's name, initially "Bom Bahia" ("Good Bay"), coined by the Portugese, who ruled from the mid 1500's until the transfer of power to the British in 1662, has undergone it's share of evolution. Between Portugese rule and the British colonization, the city was called '"Mumba" after Mumbadevi, the Hindu deity to whom a temple is dedicated at Babulnath near Chowpatty's sandy beaches' (Damania). Under British control, the name was anglicized to Bombay. The Shiv Sena, a political party, won control of the state government in Maharashtra in the wake of the Bombay bombings on a platform of Hindu nationalism. With the approval of the Bharatiya Janata Party (BJP) government, the Shiv Sena changed the name of the city in 1997 to Mumbai ("Mumbai"). When I went 'home' in 2000, I saw a completely different world from the one I had experienced since my last visit in 1991. First I noticed how much more development there was - a further encroachment

on the little free space that remained. Then I became acutely aware
of how little I could read as we passed road sign after road sign on
our way home from the airport. I remember reading the particularly
descriptive English signs on my last visit; now they had all been con-
verted into Marathi signs.

I had become an illiterate in the city of my childhood.

"Bomबई" was created for three reasons. The first was the separa-
tion I felt from the city of the present from the city of my memories.
Secondly, the work makes reference to the actual bombings them-
selves of 1993 and the resulting demographic shifts in the city along
religious lines. And finally, "Bomबई" speaks to the rapid economic
expansion in the city and the country as a whole. Viewed from afar,
the colors of "Bombay" and "Mumbai" recalls the myriad colors seen
in the streets of the city and represents the cosmopolitan origins of
its residents. "Bomबई" aims to push the discussion away from the
constant yoke of religious nationalism to a greater goal of upward
mobility for all of the city's residents.
The core tenet of the sculpture is an explosion of the past, Bombay
and present, Mumbai, as its residents and government try to chart a
future.

3.3   "Cowherd"

The final piece, "Cowherd" is aspirational. I ask both for a cer-
tain unity from the public and help from the government to mend
lasting wounds. The English word "governor" is extruded and mor-
phed to form its root, the Marathi word "govardhan," which means
literally cowherd (Ganesan) I chose to use the word governor and
it's root govardhan because of the responsibility of governments to
protect their citizens while maintaining basic human rights. The
rough transition between letters of each word, and the physical depth
of the piece is representative of the difficult transition from pre- to
post-riot Mumbai. The deep blue color and the shape chosen for the
piece were inspired by the Ashoka Chakra, the Wheel of Dharma.
("Ashoka Chakra") Positioned at the center of the Indian flag the

"Cowherd"

22
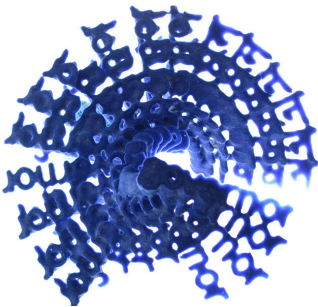
The Indian flag

wheel represents the progress of the nation over time and continues the metaphor of reconciliation initially developed in the "Bomबई" piece. From an angle, "Cowherd" looks like a spiral with the English word transforming into the Marathi word or vice versa depending on the viewer's position. Viewed from the front, the sculpture is more akin to a wheel, with either end seemingly attaching to the other. These two views, dependent on the angle with which a viewer looks at the sculpture represents the lens through which we look at the city of Mumbai today; a city aware of its mistakes and moving towards bridging a gap between the disparate communities that inhabit its borders. As the third piece in the series, "Cowherd" completes the triptych that began with "Encounter" and "Bomबई".

4   The Process

4.1   From Analog to Digital

The realization of "Suspended on a Road from Here to There" began with sketches of cut-out English characters that I deformed manually. The study in which I captured the entire alphabet and base 10 numerical system was an attempt to grasp how to bend and shape standard letter forms into abstract shapes that kept both their original intention and evoke a new response. I made the decision to morph each letter and number three times both for the aesthetic of the drawings and to deeply understand the topology of the letter. I chose News Gothic MT for its organic shapes and subtle transitions of stroke width that contribute to a less severe, humanistic feel than many other grotesque (sans-serif) fonts created during the same time period. The English words and letters that make up the sculptures were created in Adobe Illustrator (Ai) and converted into outlines for export. That was pretty straightforward, but there were enormous problems in rendering the Marathi letters using the Devanagari font. Two methods for digitizing the words were used to address these problems, one of which proved more fruitful. Marathi is a phonetic language in written and spoken form while English is not. Syllables are created by adding vowel diacritics to consonant bases. Neither Adobe Photoshop (Ps) nor Ai render Devanagari fonts natively. Thus, they produce correct forms but incorrect positioning. Yet it is the placement of these diacritics that is particularly important to the creation of words and phrases. To rectify the problem I combined several software applications. Because TextEdit on the Apple Mac does not have the same rendering issues as Ps and Ai, I used it to properly type out the words. Next, I took a screenshot of the word and opened the image in Ps. Using the magic wand tool I highlighted the word and converted each letter to a path. I manually edited each resulting path to close any holes that might later create issues in Autodesk's Maya (Maya). Then, I imported the final paths into Ai and saved them in an older format (Adobe Illustrator 8) so they would be compatible
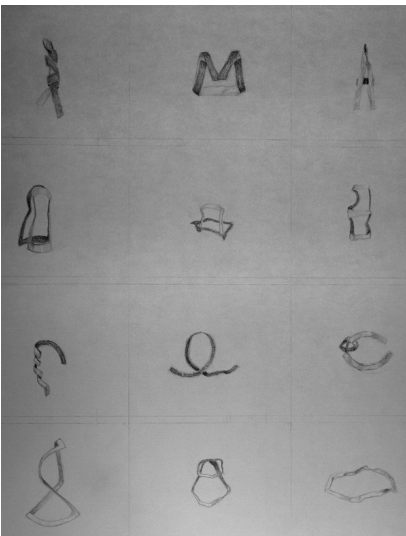
One in a series of drawings I made to begin to understand the topology of the English alphabet

News Gothic MT

"News Gothic MT," a grotesque font, considered to be humanist in style and shape

Incorrect rendering of "Mumbai" in Marathi by the Adobe Creative Suite 3

Proper rendering of "Mumbai" in Marathi by TextEdit on the Apple Macintosh (OS X)

with Maya. Finally, I imported each path file that had been saved in the Adobe Illustrator 8 format into Maya where I applied the extrude and bevel tools. Unfortunately, the shapes were not as smooth as I desired.

In order to avoid the irregularities of the previous approach, I decided to manually trace the TextEdit screenshots using a Wacom tablet and pen in Ps . Tracing the letters allowed for better control and placement of control points in Ps than just the magic wand and resulted in letters that replicated the smoothness of those in TextEdit. After drawing each letter, the Ps files were opened in Ai and converted into paths. The files were saved in a the Adobe Illustrator 8 format and imported into Maya.

4.2   From Digital to Physical

In Maya, I used the bevel tool to both bevel each letter and extrude them over a distance. This same procedure of beveling and extrusion was done for the english letters. I used a low value (1.0) for declaring the distance over which to extrude each letter in the bevel tool to give the letters a sense of fragility.

For "Encounter," I applied the n-cloth property - with the plug-in "cloth" - to the Marathi letters. The n-cloth property allows objects to be deformed on collision. The "cloth" plug-in gives greater control over the individual attributes of n-cloth. To the English letters I applied the rigid property and proceeded to collide the Marathi and English letters. This collision deformed the Marathi letters and after some manual tweaking I had objects that were ready to print.
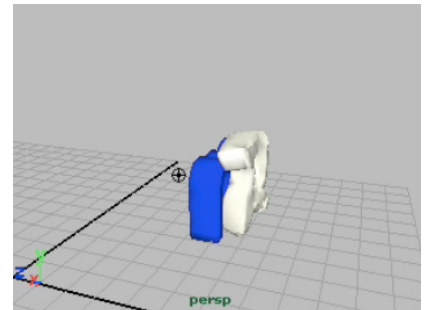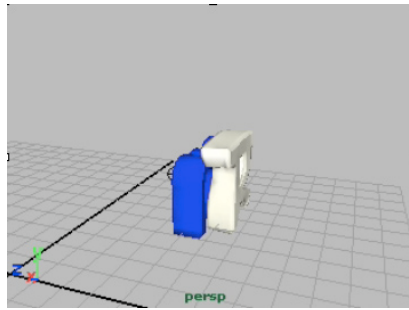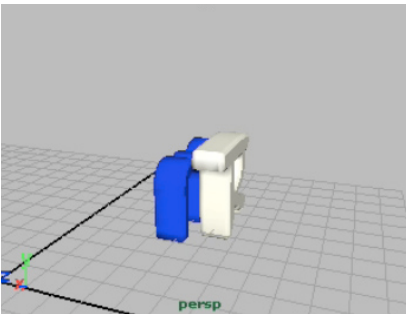
Collision of "en" with it's Marathi syllabic equivalent

For "Bomबई," I used the shatter tool to break apart the English and Marathi letters. Each letter in "Bombay," "Mumbai" and "Bomबई" was broken into 10 sections. The inputs for the shatter effect were again chosen to create a sense of lightness. To prepare for printing, each piece of the shattered letter was separated from each other.

"Cowherd" posed a different set of problems that I addressed using a combination of Ps, isosurf and Maya. I first created a set of images in Ps and saved them as black and white images in RAW format, labeling them numerically for easy input into isosurf. Isosurf, designed by Graham Treece, is generally used for medical imaging. The power of the software rests in its ability to create smooth transitions from one image to another. Using a command line interface on a Windows PC, I inputed the number of black and white RAW images, the dimensions of the image, a numerical range from black to white, a value for resolution and a length over which to realize the figure to morph the Marathi word "govardhan" to the English word "governor." I used blender, an open source 3D rendering program to import the .wrl file created by isosurf and exported a .vrml file that was then opened in Maya. After I tweaked the depth of the piece in Maya, I exported a .vrml file for printing.

Finally, I used ZPrint to open all of the Maya files from "Encounter," "Bomबई" and "Cowherd" and sent four corresponding .zbd print files to Z-Corp's Spectrum Z510 3D 24-bit color printer at New York University's (NYU) Advanced Media Studio (AMS).

After receiving all of the prints from AMS, I infiltrated each piece with cyanoacrylate and painted them with acrylic paint.

5   Looking Back/Moving Forward

5.1   Conclusion

"Suspended on a Road from Here to There" is the culmination of two self-imposed challenges. The first is a purely technical challenge: could I learn a new software package, Maya, in a short amount of time for the purpose of creating very specific sculptures realized through a 3D printer. Many of the ideas I initially had for the work had to be either reduced in size or complexity because of my limitations in harnessing the full potential of Maya. However this does not minimize the work that has been created. Rather, the constraints of time and limitations of technical knowledge forced me to concentrate on the core principles of the piece. And focusing on those core principles led me to a simplification of the conceptual framework for the work and what I believe is a stronger final result.

The second challenge, creating an aesthetic set of sculptures that also conveys a set of information to the viewer is every artists's goal. For me with "Suspended on a Road from Here to There" that meant creating three sculptures that stood on their own individually and resonated as a triptych. Moreover, my aim was to create a path for the viewer from one piece to the next both spatially and conceptually all the while relaying a particular set of information that one could use to inform one's understanding of each resulting work. On this second challenge, I leave it up to both the audience and critic to decide to what degree I have succeeded.

Ultimately, as a whole, this thesis work creates a physical representation of lessons learned from the past and a hope for a more generous spirit in our descriptions of one another as we move into the future.
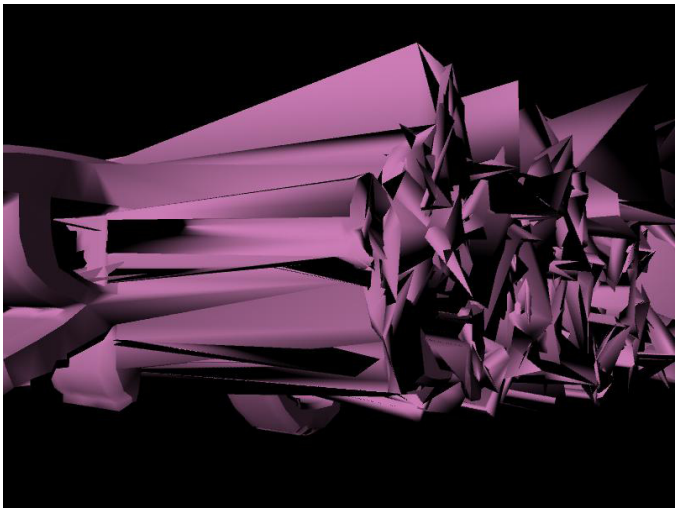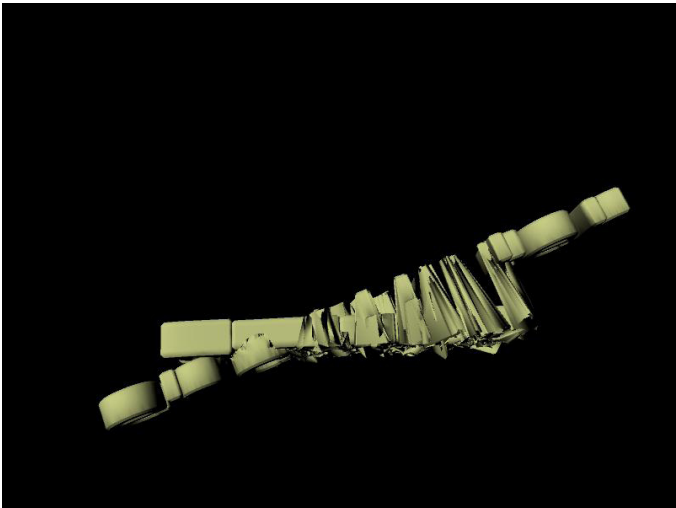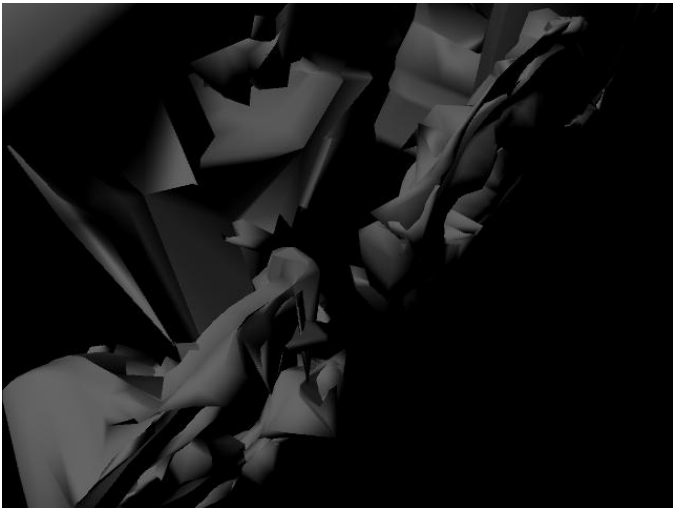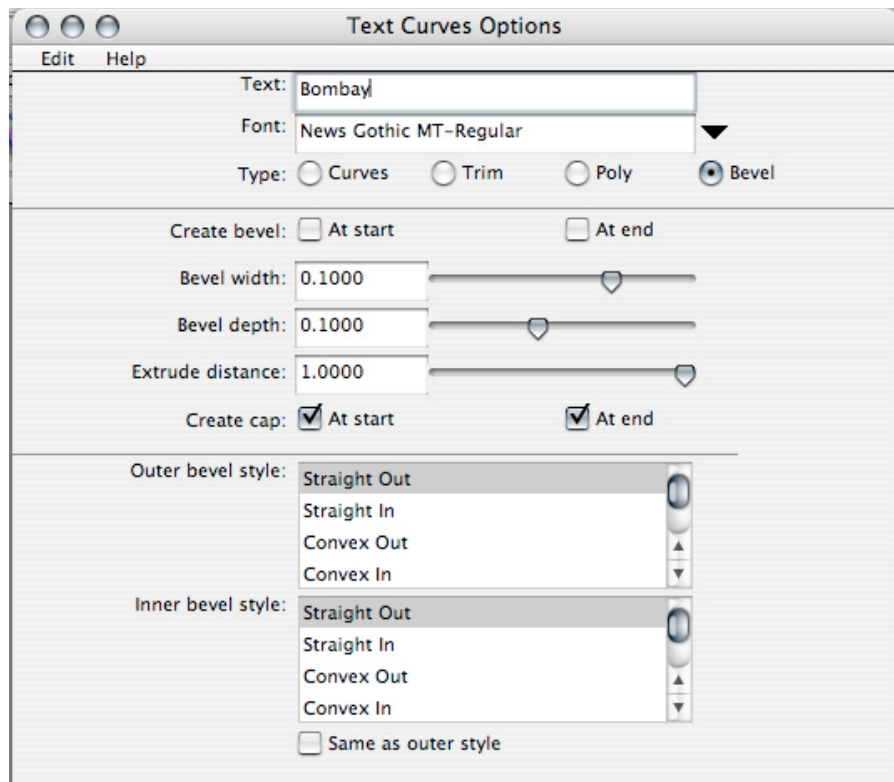
Early prototypes of text collisions from "Encounter" that informed the final work.

A   Implementation Notes

In this appendix section, I describe in greater detail the specific technical steps taken to realize "Suspended on a Road from Here to There."

Below are the values I used to extrude and bevel both the Marathi and English letters for "Encounter" and "Bomबई."

Values used to extrude letters

The cloth plug-in can be accessed here: http://area.autodesk.com/index.php/downloads_plugins/results_index/d43deac15429266393a822faa46d56af/

For the n-cloth tool, I used the "chainMail" preset, part of the cloth preset package. The values for the cloth plug-in preset are displayed in the screenshot on the following page.
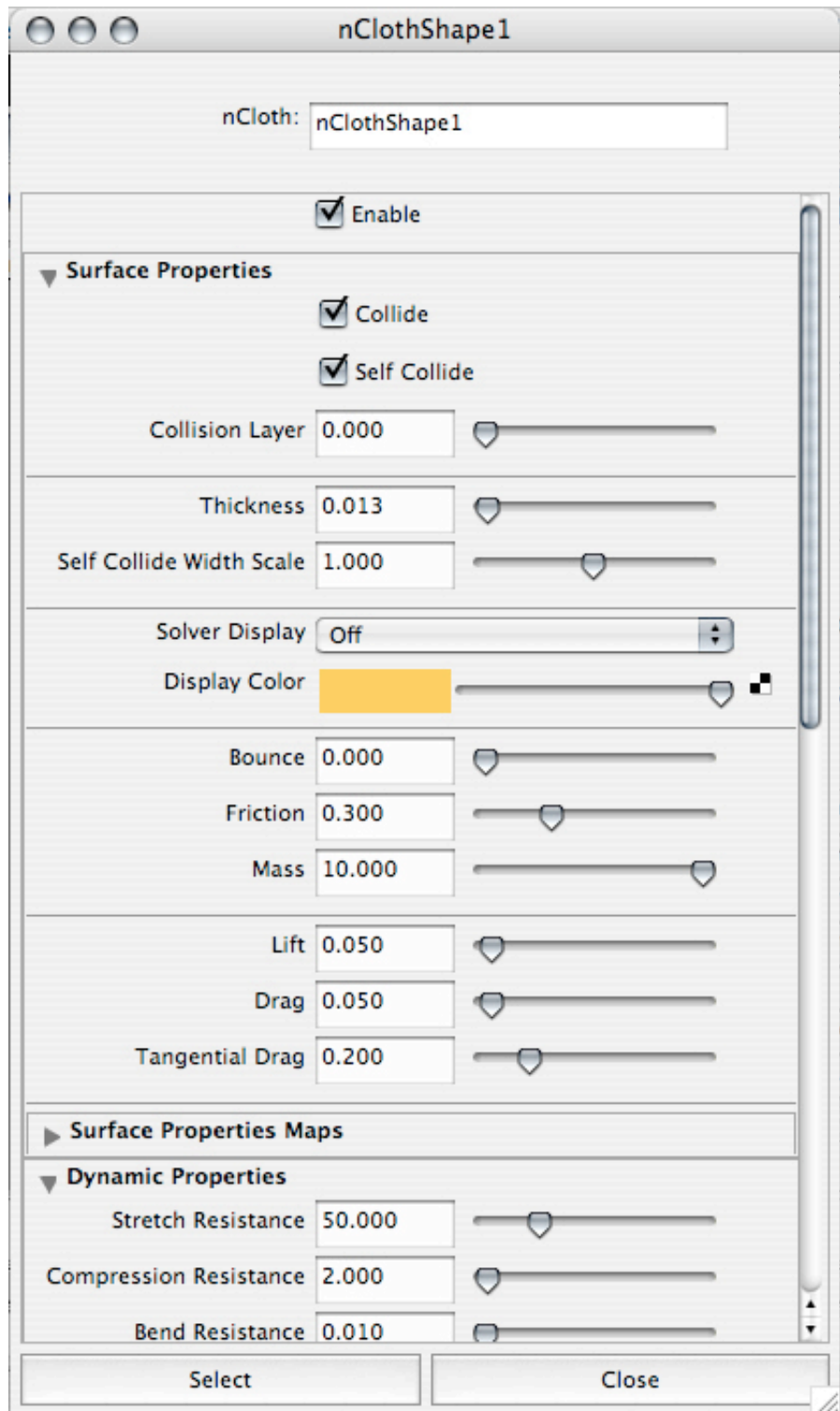
"chainMail" preset, as part of the cloth plug-in package.

The values in isosurf to render "Cowherd" were the following:

```
-t 10,250 -i total.bin -d 600,600,33 -s 1,1,60 -r 5 -u
```

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