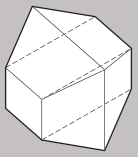
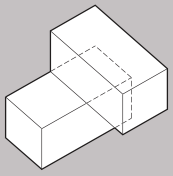
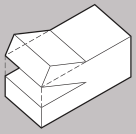
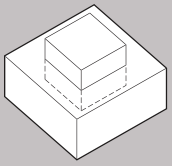
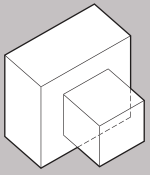
OPERATIVE DESIGN
A Catalog of Spatial Verbs

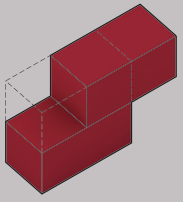


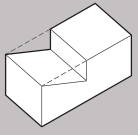


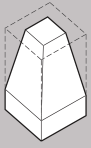


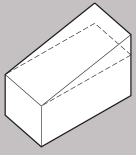


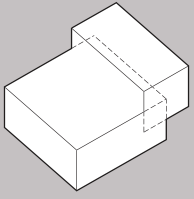


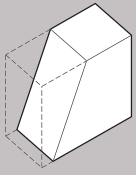


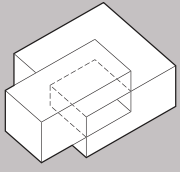












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Operative Design: A Catologue of Spatial Verbs

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OPERATIVE DESIGN
A Catalogue of Spatial Verbs

Anthony Di Mari
Nora Yoo

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Foreword

This project was inspired by a unique dual perspective on architectural education. As recent Masters in Architecture graduates, I worked with Anthony and Nora as we took our first steps into the post-school world through studio instructorships – teaching much of the knowledge we had just assimilated ourselves. Through our own design studies as well as our creative crafting of studio curriculum, we discovered a theme in architectural pedagogy – the platform of possibilities offered by operations as design "actions." The operations collected in this publication are but a sampler, a fragment of those we have encountered in our own work as well as that of our students, used as kick-starters for compelling spatial exploration.

The power in the operational verbs exemplified in this book is that each provide a portal to the abstraction of space. The action potential captured in each simple word unlocks possibilities that, without this 'key,' would be obscured by our own widespread and preconceived tropes of the built world. A "house" need not always be the same expected idea of a house if you begin the process of designing it from a novel starting point – a word that opens up a limitless breadth of creative spatial results.

In our teaching, we found that beginning design projects with spatial operations as the first step allowed our students to translate their conceptual ideas and 'everyday' observations into the new spatial language of architecture they were just beginning to learn. This approach to teaching also encouraged this type of design thinking before program, the defined use of a given space, was even introduced. We discovered that, with the introduction to an operative term, our students were able to unlock studies in volumetric relationships, proximities, adjacencies, and experiential factors without being weighed down by their familiar or preconceived notions of what the space was meant to be. The assignment of building typologies and their associated programs followed next in our design process. These specifics found roots in much more engaging and interesting constructs when the sequence was initiated through an abstract spatial operation.

Because of the impact these verbs had on our own design work, as well as on the student projects we have seen over the years, Anthony, Nora, and I discussed the possibility of creating a compilation of these explorations. I am happy to see this resultant product that grew from our inspiration to collect our operative design explorations into a graphic assembly.

Megan Panzano
June 2012

Introduction

This book is, in its simplest definition, a catalogue. It is not, however, an index definitive in its boundaries. Its ambition is rather to serve as a fundamental tool for spatial and architectural interpretation. The terms collected and illustrated herein provide a diverse set of entry points into the language of spatial design. These spatial operations are not ends unto themselves, but are instead a set of illustrated beginnings to activate architectural inquiry, assembled to ignite the design process.

Richard Serra's *Verb List Compilation: Actions to Relate to Oneself* [1] works in a similar way, showing how language can invoke form, as well as one's experience or interaction with it. His list, which includes 'to fold,' 'to modulate,' 'of tension,' 'of entropy,' carefully balances what can be read as a systematic approach along with its effect on the consideration of spatial character, or essence. It is at once defined and yet limitless in what it could yield formally and experientially.

The verbs contained in this book are organized within a systematic framework to begin to differentiate how they operate volumetrically. The categories set up in the table of contents are meant to initiate spatial opportunities rather than to limit them. This catalogue thus introduces the possibility of understanding spatial formation as a process that can be derived from fundamental actions, here grouped into volumetric addition, subtraction, or displacement, which define a lexicon of starting points for the creation of space and also imply the relationship between oneself and the space created.

[1] Richard Serra. *Verb List Compilation: Actions to Relate to Oneself* 1967-1968.

Surface + Volume

The focus on surface in contemporary architecture has resulted in the evolution of designing building envelopes, performative grounds and landscapes via a planar manipulation. The pursuit of manipulating a plane through simple operations – folding, weaving, wrapping – as a process of generating buildable surfaces, also provides a logic for understanding implied volumes. These surface operations suggest that spatial design is an active feedback loop between the 2D plane and the 3D volume.

From design practice to academic pursuits and methodologies, spatial configuration through surface manipulation generated diverse ideas and allowed for a wide range of recently built examples of this kind of 'folded' architecture. There are a number of precedents to this book that focus on these surface operations, including its topical published predecessors, *Folding Architecture*[2] and *Supersurfaces*.[3] As a precursor to these works, Steven Holl's 'Correlational Programming' studies in *Parallax*[4] explored the idea of spatial formation through two-dimensional line drawings that imply active relationships between defined areas and also between those areas and a ground plane, or datum. An indexing of the qualities and characteristics of surface manipulation can be found in Foreign Office Architects' 'Classification System' in *Phylogenesis*.[5]

Operative Design extends the focus from surface to volume. Volumetric spatial operations, similar to surface manipulations, present a platform upon which to begin the design process. This book thus inserts itself into the existing discourse with a new angle – that of exploring decidedly volumetric interactions, which immediately evoke, merely through the fact that the base blocks used here are three-dimensional, an understanding of inhabitable space and the dimension of scale.

[2] Sophia Vyzoviti. *Folding Architecture* (Amsterdam: BIS, 2003).
[3] Sophia Vyzoviti. *Supersurfaces* (Amsterdam: BIS, 2006).
[4] Steven Holl. 'Correlational Programming' in *Parallax.* (Princeton: New York, 2000), 212-213.
[5] FOA. 'Classification System' in *Phylogenesis: FOA's Ark.* (Barcelona: Actar, 1999).

Merge

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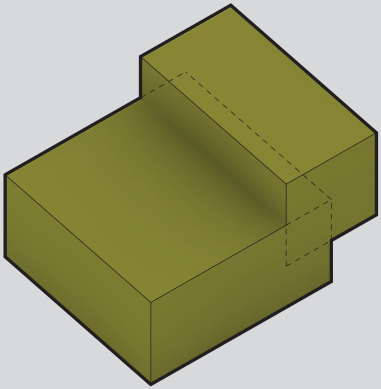

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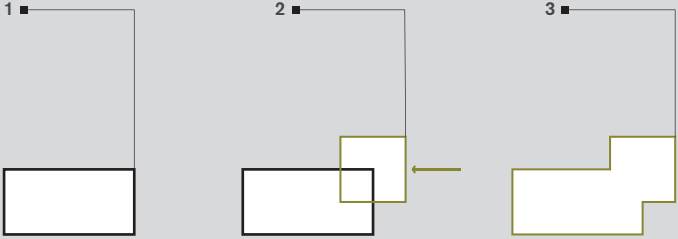

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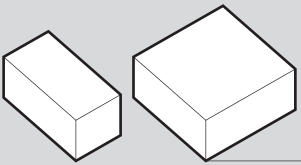

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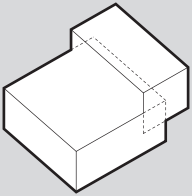

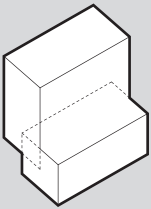

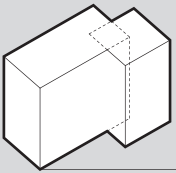

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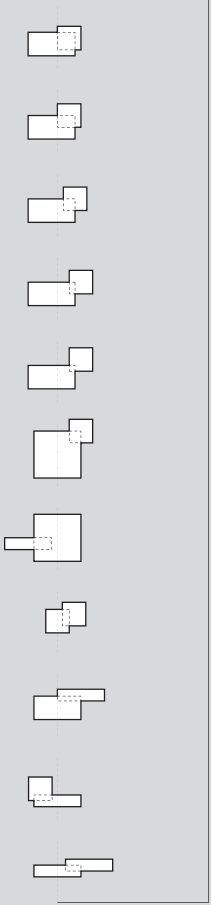

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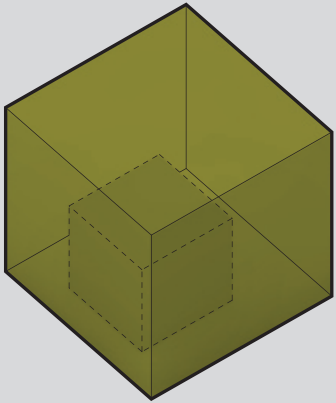

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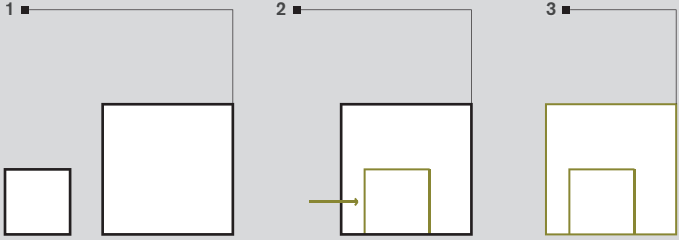

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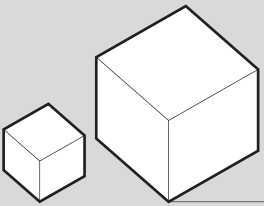

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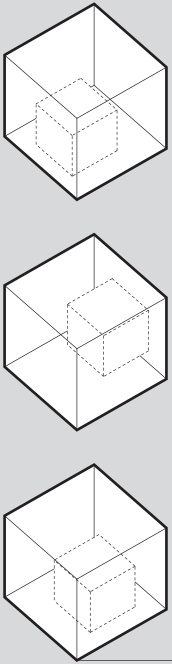

Variations

Offset

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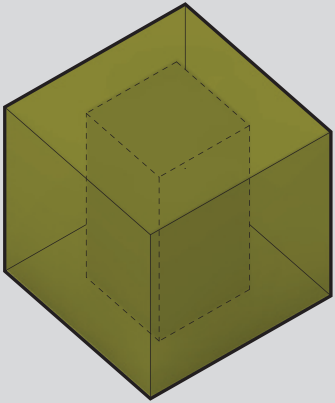

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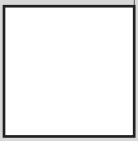

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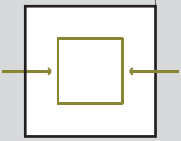

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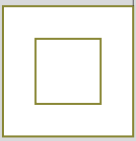

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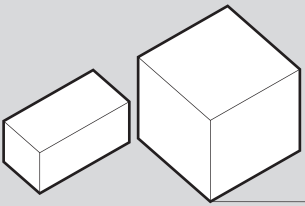

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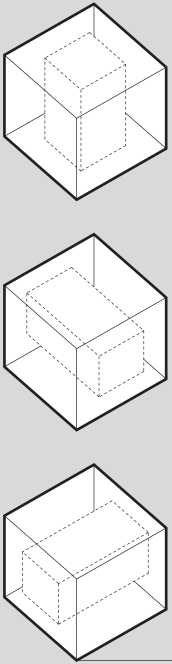

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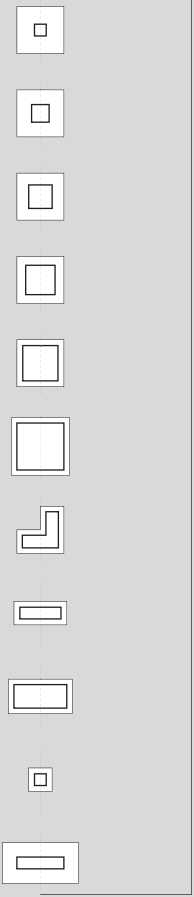

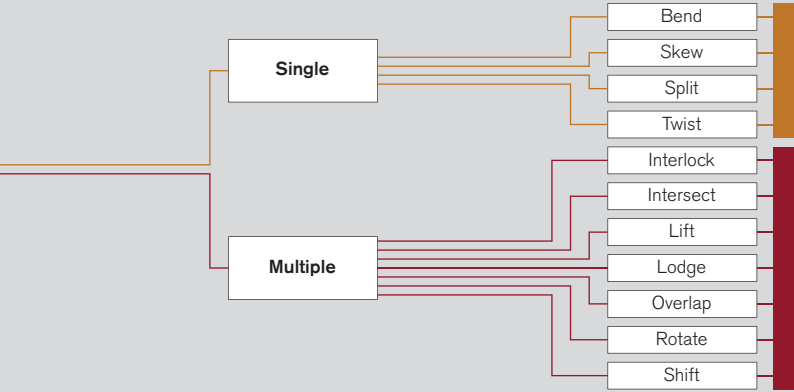
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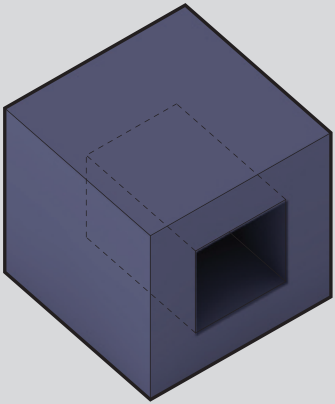

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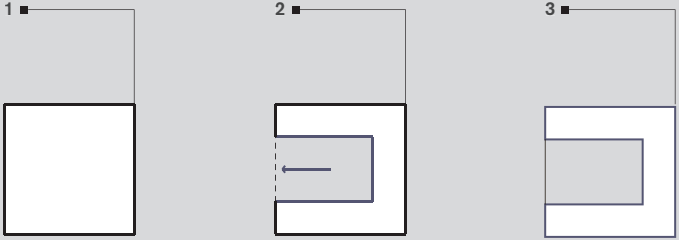

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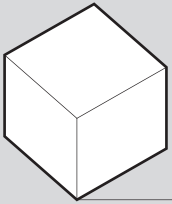

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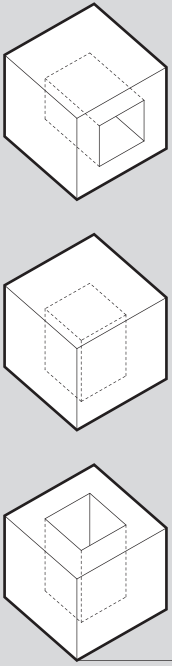

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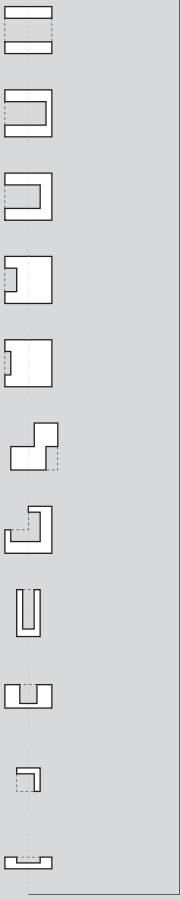

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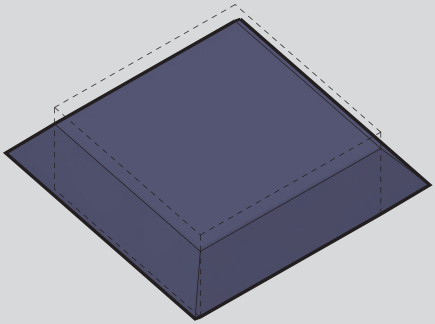

Procedure

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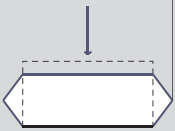

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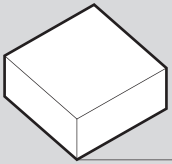

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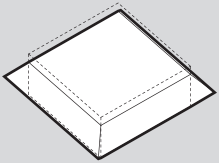

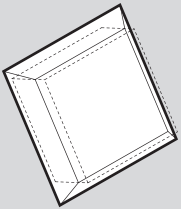

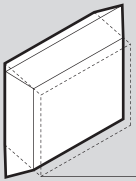

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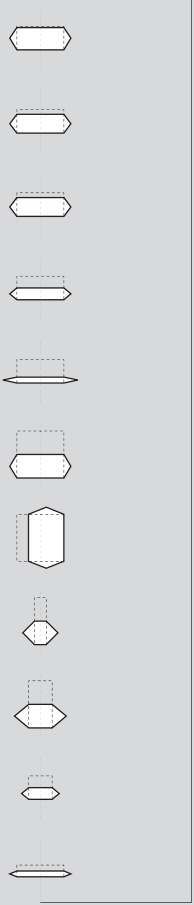

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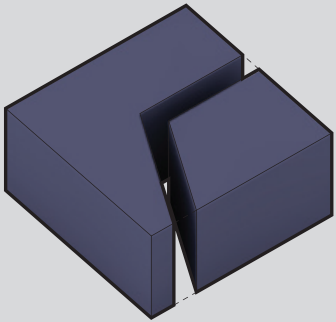
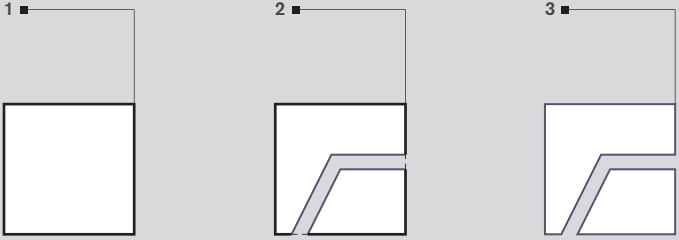
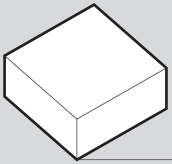


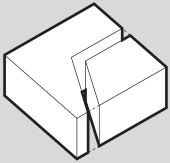
Procedure

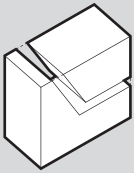


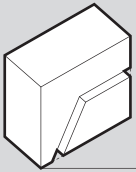
Base Volumes



Orientation



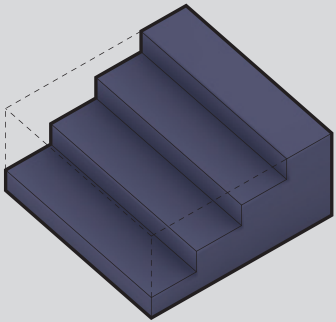




Variations

Grade

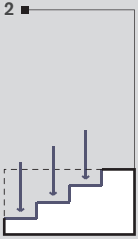
Subtract | Single Volume



Procedure

1

2



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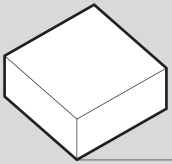
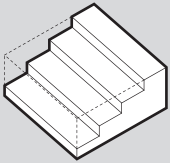
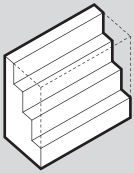
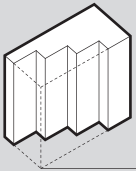
Base Volumes



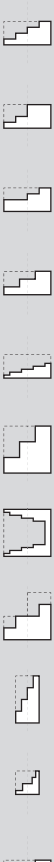
Orientation





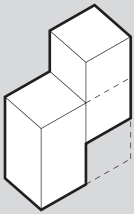


Variations

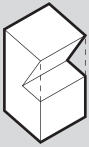


Shift + Notch

Displace | Multi Volume + Subtract | Single Volume

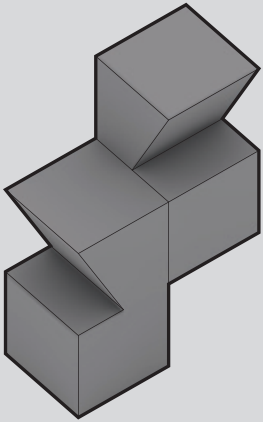


Operation - Shift



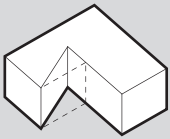
Operation - Notch

Combined Operations - Shift + Notch

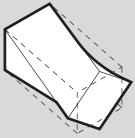


Notch + Twist

Subtract | Single Volume + Displace | Single Volume

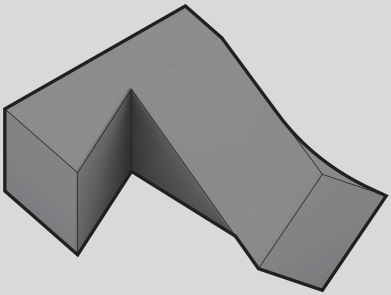


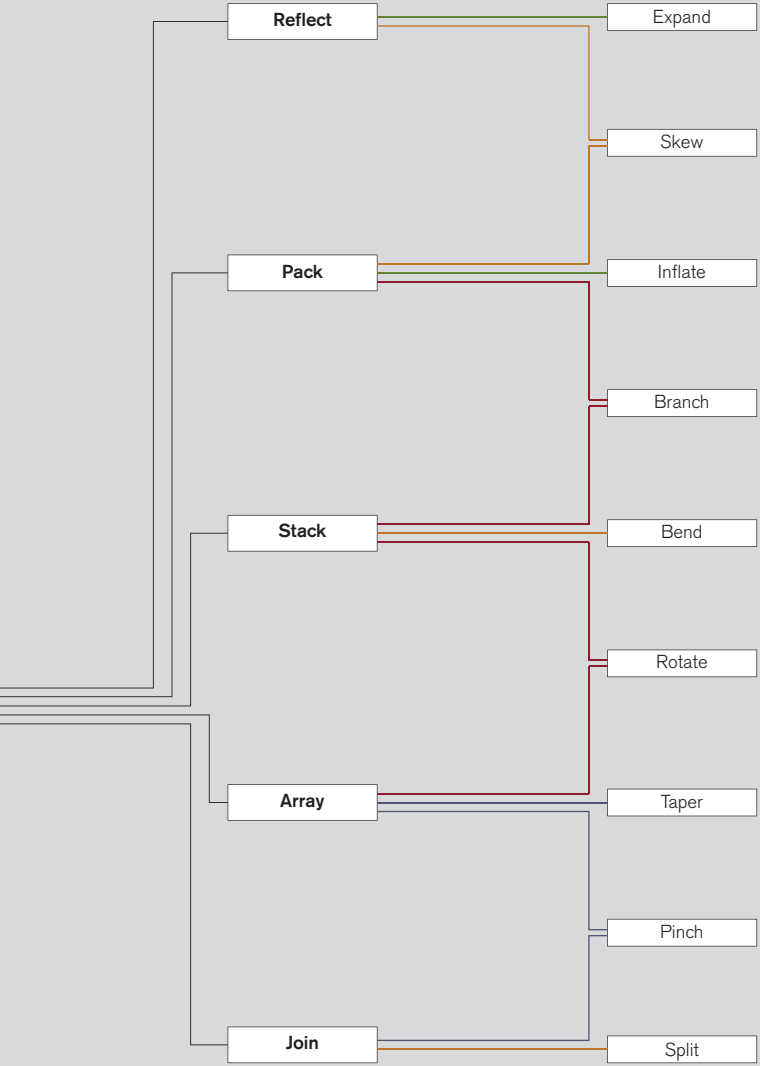
Operation - Notch



Operation - Twist

Combined Operations - Notch + Twist




Reflect
Expand
Skew
Pack
Inflate
Branch
Stack
Bend
Rotate
Array
Taper
Pinch
Join
Split

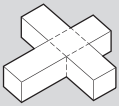
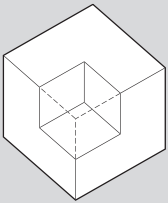
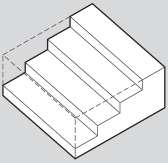
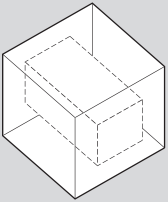
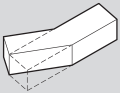
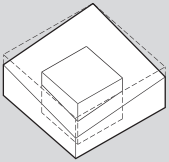
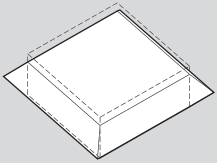
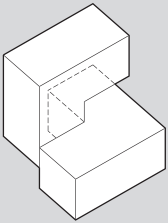
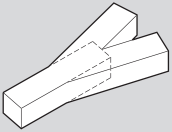
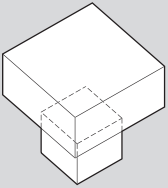
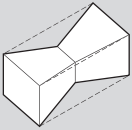
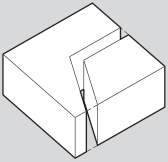
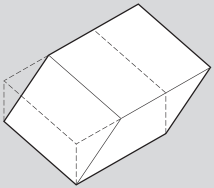
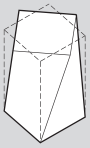
Biographies

Anthony Di Mari

Anthony Di Mari is an adjunct professor at Northeastern University's School of Architecture where he teaches first year architecture studios and advanced representation. He received his Bachelor of Arts in Architectural Studies from Holy Cross before completing a Master's degree in Architecture at the Graduate School of Design (GSD) at Harvard University. Anthony's competition work has been featured online through Inhabitat, Scientific American, CNN, and shiftBoston. His fabrication projects have been featured in exhibitions focused on the design process including Matter: design processes at the Bakery Design Collective in San Diego, California, and furniture featured at GreenHomeNYC's The new New York event. His professional experience in the field of architecture includes work with Eisenman Architects, Rick Joy Architects, RCR Arquitectes, and Studio Luz. His studio is located in Boston, Massachusetts.

Nora Yoo

Nora Yoo is an architectural designer in New York City. She received a Bachelor of Arts magna cum laude with honors in Architectural Studies and Hispanic Literature and Culture from Brown University. Following her undergraduate studies, she went on to receive her Master's degree in Architecture at the Graduate School of Design (GSD) at Harvard University. While studying at the GSD, Nora honed in on research regarding the application of design thinking to pressing global issues with Toshiko Mori, in addition to exploring the future of physical space for information exchange in her thesis with her advisor, Mack Scogin. In her professional career, she has taught studio at the GSD's Career Discovery program and has worked with Carlos Zapata Studio, SB Architects, Toshiko Mori Architect / VisionArc, and Architecture Research Office.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