The interaction between reality and imagination in architectural design is explored through live projects, a study of the subject-object problem, the work of John Hejduk and Thing Theory.

Following John Hejduk's Fabrications: On imagination and reality in the architectural design process

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This paper asks how reality and imagination interact in the architectural design process. It engages with four inter-related topics. First, the interplay between reality and imagination in the architectural design process is addressed in relation to the context of student design-build live projects[1] (as opposed to projects conducted in professional practice or conventional design studio projects in education). Second, the actions of different agents in the architectural design process are addressed in terms of the interplay of reality and imagination. Third, the work of John Hejduk (1929-2000) is invoked, specifically with regard to how it helps architects, educators and students reappraise conceptions of reality and imagination in architectural design. Fourth, we address a live project for The Story Museum in Oxford, UK – a physical architectural space concerned with imaginary spaces – which addresses how an understanding of reality and imagination might be improved in the architectural design process.

      This paper aims to reappraise the interplay of reality and imagination in architectural design as a cognitive process. There are two intentions: to reassess empirical responses and received wisdom about what is real and what is imagined in architectural design; and to reassess the perception of differences between imagination and reality occurring across education and practice.

      What follows will examine relationships between reality and imagination in architectural design conducted with year one students at the Oxford Brookes School of Architecture, UK, through a programme of live

projects named OB1 LIVE,[2] in particular the students' work with The Story Museum, Oxford, UK, in 2011-12. This work comprised two related live projects – titled *Fabrications* and *Tower of Stories* – a book, *Fabrications*, published in 2011, and an installation, *Tall Tales*, for a 2012 exhibition *Other Worlds*.[3] What follows will reflect on the design of physical spaces for The Story Museum that evoke, and were evoked by, imaginary spaces. It highlights complexities surrounding the relative perceptions of reality and imagination between the different agents involved – students, client collaborators and tutors – from conception to occupation.

A study of the written, drawn, pedagogical and built work of John Hejduk supports the reflections on reality and imagination drawn from our live projects with The Story Museum. An architect, educator, writer, artist and poet, Hejduk's writings also addressed the territory between architectural education and practice, as well as a concern with literature and storytelling. Reference is made to Hejduk's projects *The Collapse of Time* (1987) and *The Lancaster / Hanover Masques* (1992), the student project, *Nine Square Grid Problem* and the installation *The Retreat Masque*, constructed for *Writing the City*, Stockholm (1998). His work also addresss the relationship between the subject and object, helping to identify inter-relationships between reality and imagination in the architectural design process.

'Thing Theory' is proposed as a conceptual framework to improve our understanding of how architectural designs emerge, are transformed in the designer's mind, how architects communicate them to others and how they are understood and shared by others. Reference is also made in what follows to interviews with respected architects undertaken by Lawson[4] and Anderson.[5] The interviews have been analysed to reveal the architects' perceptions of the relationship between reality and imagination as they reflect on their own design process.

Perceptions of reality and imagination
Steven Shapin writes that 'There are towers and there is ivory, both quite real; it is their combination in the idea of an Ivory Tower which is both imaginary and consequential.'[6] The phrase *ivory tower* is often used to characterise academia in contrast with the supposedly grounded reality of the everyday. This idea informs the transactions between architectural practice and theory, particularly when discussing the place of architectural education.[7] The supposed intangibility of theory contributes to its dismissal as being disconnected from reality. Academia is the customary site for the generation of theory so its products, including education, are often assumed to lack reality. An as-yet unbuilt architectural design is intangible and can also be dismissed as lacking reality. These issues are problematic when trying to understand reality in relation to architectural design education.

We had observed that this perception created confusion for year one students learning to design on entering architecture school.[8] The conventions

of what is and is not real in a typical design studio brief are normally implicit and therefore confusing to the uninitiated. This was a significant motivating factor in our introduction of live projects on day one of year one. When asked what they enjoyed most about the design module, one student answered: '[the] live project as you felt more involved […].'[9] The live projects discussed here were part of students' compulsory design modules in semesters one and two. This allowed us to develop a pedagogy addressing the perceived detachment of both practice and contemporary architectural education from everyday lived experience. Students who had undertaken live projects reported a strong sense of community and a recurring comment was typically expressed thus: 'it helped designing for a community that you could interact with.'[10] One student achieved a level of insight not normally possible at this stage because they noticed that they had fallen into a common trap for designers of becoming so absorbed in the fascination of making that the needs of the client and site had been neglected: 'I liked the creative ways of doing site analysis […] and learning about the client, but I felt that I was a lot more focused on making an artefact.'[11]

Design briefs were negotiated with our external collaborators to ensure that students could explore their creative potential. As a result, students didn't report becoming hamstrung by budgetary, material, or ethical constraints of the sort which would not have figured in a traditional design studio project. One student's description illustrates an acceptance of such real-life constraints as a given rather than as insurmountable restrictions: 'The opportunity to develop a design that had little restraints in the brief allowed me to explore my creativity and imagination […] I enjoyed the way that my design was encouraged to develop with my intentions in mind as well as to purely fit into a normal brief.'[12] Since establishing a live projects programme in 2008, we have observed that such projects enable students to absorb both the reality of the situation as well as its creative and imaginative potential into their developing architectural design process in a natural, non-disruptive way. This process of observation, reflection, analysis and discussion led us to develop this definition of live projects:

> *A live project comprises the negotiation of a brief, timescale, budget and product between an educational organisation and an external collaborator for their mutual benefit. The project must be structured to ensure that students gain learning that is relevant to their educational development.*[13]

Before this process, our understanding of what might be thought of as real and what seemed imaginary in the architectural design process was that reality approximately equated to what was tangible and physical. These assumptions were challenged by working with The Story Museum. Children's stories often reflect on these issues with great insight and clarity: 'Of course it is happening inside your head, Harry, but why on earth should that mean that it is not real?'[14]

Despite initial assumptions that architectural practice is immersed in reality, the practice of architectural design is essentially a predictive pursuit, engaged in thought, activity and production directed towards realising an as-yet-unrealised future. Does the architect achieve some kind of reality when the building is designed, completed or when it is occupied? While creativity and imagination can be suppressed in a competitive commercial environment, architecture's ambitions seem to exceed the task of simply building a building. Are artefacts such as architectural models evidence of the former, the continued or the never-attained reality of a project? Could the reality of a project be as intangible as a proposal that has taken root in the minds of both client and architect?

It seems inadequate to define reality in architectural design as the physical manifestation of an inhabited building. The distinction between reality and imagination in architectural practice is problematic if the distinction is defined by intention or completion. Changing circumstances over time and design decisions made during the creative process alter our expectation of the likelihood that a project will be realised and therefore how real it is perceived to be. Perhaps architects have been guilty of focussing on the significance of their own imaginative experience as authors and have not spent enough time observing the imaginative journeys made by others such as the client or community over the course of the project.

In 2011, OB1 LIVE undertook a live project titled *Fabrications* for The Story Museum. On reflection, we observed the significance of the role played by tutors in articulating and mediating shifts between reality and imagination for students and client collaborators. This was most important for the client collaborators during the negotiation of the brief, the project installation and presentations. As a live project rather than a professional one, collaborators were aware that the students' learning was as much of an outcome as the physical construction. Tutors supported students throughout the project as they learned the process of architectural design. In particular, this was required when they appeared to be occupying either imagination or reality exclusively and needed to be reminded to test their current position against the other. This advice was given in order to progress the design, done in a way similar to the advice familiar from a traditional design studio project when a tutor suggests a change in medium such as from sketch to model. The live project enabled important conversations where students were required to make decisions on whether to prioritise an idea or a structure, whether to explore its limits and what the consequences of failure would be - debates begun in the first four weeks of semester one which would be hard to explore in a conventional studio project and which were more sophisticated than those normally possible in a year one curriculum.

When it was completed, the immediate present became strongly real for all agents. There was mutual agreement about what that present reality was and why that particular reality had occurred. The evidence for this came

during a concluding presentation and feedback session where client collaborators, students and tutors discussed design proposals and concepts important to the project and there was considerable agreement about why these proposals and concepts were significant [1]. Over the course of the project, agents converged and diverged as they moved between reality and imagination. Agents' perceptions were able to differ over the course of a project without causing explicit disruption to it. An understanding between the agents of these shifting perceptions of reality, and an ability to communicate them, appears significant to the success of the project's conception and realisation.

Subject and object

Verbal, written and drawn descriptions of architectural projects put forward evidence of shifts in the perception of reality as circumstances change during the design process. Whether work is described as either subject or object reveals whether we perceive the building to be an inanimate, passive object or an animated, active, conscious subject. For philosophers, the distinction between subject and object is broadly concerned with understanding human experience by considering what exists (objects) and how we (subjects) perceive those objects to exist, allowing the interrogation of what we perceive to be real and imagined as well as suggesting how this may differ in the minds of others. In works such as the *The Description of the Human Body*, 1648, and the *Passions of the Soul*, 1649, René Descartes differentiated the physical body and the non-physical mind.[15] Cartesian Dualism, which places mind over matter, at first seems to fit neatly with individual empirical experiences: I (the subject) observe the object in order to understand the world. I can influence that object. It becomes more difficult to draw conclusions, however, when we consider ourselves in relation to others. In his *Critique of Pure Reason*, 1781, Immanuel Kant retained this dualism[16] but altered the traditional relationship between subject and object by positing that we can never have direct experience of the physical because our experience is filtered through our senses. We can only experience a phenomenal world. How the mind perceives the world becomes the essential question. In the *The World as Will and Representation,* 1818, Arthur Schopenhauer shifted the focus away from trying to solve a dualistic subject-object problem. The subject doesn't cause the object and the object doesn't cause the subject. They are inter-dependent.[17]

Writing from the field of material culture, Tilley describes the complexity of the relationship between subject and object:

> *Object and subject are indelibly conjoined in a dialectical relationship. They form part of each other while not collapsing into or being subsumed into the other* […]. *The ontological relationship between the two embodies this contradiction or ambiguity: same and different, constituted and constituting.*[18]

Freed from the limits imposed by a solely empirical understanding that objects are and that subjects are active, it can be observed that the relative roles,

identities and even materiality of subject and object can alter during the design process. For example, the architect and their collaborators are immersed in the future life of the building in different ways throughout design. And, although as-yet unrealised, the building is a subject with a life of its own for those involved in its production. Not only can a building be a subject, an object does not always have to possess a physical materiality. Anthropologist Victor Buchli describes different material registers in which we can understand architectural form beyond the tangible: 'image, metaphor, performance, ruin, diagnostic, or symbol'.[19] These non-physical forms are key devices that architects use to create and communicate meaning and experience that resonates beyond the individual designer and reaches wider society via their architecture.

John Hejduk

Reflecting on Hejduk's work sensitises the subtle condition between subject and object[20] in relation to architectural creation, production and inhabitation. In works such as *The Lancaster / Hanover Masques*, Hejduk categorised his architecture and its inhabitants into objects and subjects, often in unexpected ways. Many of Hejduk's architectural designs are anthropomorphic, suggesting ambiguities between architecture and its inhabitants. The unresolved tensions between architectural theory and practice have been exposed by Hejduk's particular approach to what is real and what is imagined. He was criticised as 'the consummate paper architect, an artist who has shirked off the cumbersome apparatus of conventional practice and created entire cities of the mind'.[21] But such comments obscure the complexity of the relationship between reality and imagination in design. Sensitive to this, Hejduk asserted the credentials of his practical experience (such as his substantial renovation of the Cooper Union School of Architecture building)[22] and the thorough pragmatic grounding in practice of his early career.[23] Hejduk explained unapologetically that he did not 'make any separation between a drawing, a model, and a so-called actual building.'[24] Later in his career he welcomed the construction of twenty-six[25] of his unrealised designs as installations in places such as Copenhagen and the Architectural Association, London, for the *Writing the City* project. 'It's like a traveling repertory theatre', he suggested. 'They [the installations] come into the town, they do what they have to do, and they leave to go to the next place. I love that.'[26] These often-temporary constructions began to be built in the 1980s. Most, interestingly, were initiated by students and tutors or commissioned by museums and festivals rather than by Hejduk himself. His involvement was more collaborative and open than one might expect from the author of such designs. 'My only request is that they capture the spirit', he wrote.[27] Myths – like those concerning Medusa and the Labyrinth – remained significant in his work, not only emphasising the presence of imagination in architectural design but also its significance in individuals' experiences of built and inhabited architectural spaces. The experimentation and unconventional realisation of these installations spanned conventional

boundaries between the professional and educational, the practical and theoretical.

The Story Museum

Kevin Crossley-Holland reflects on:

> *'Story' and 'Museum': two potent words. Now combine them and you're crossing the threshold into a physical space, a magical idea, an organisation, and immensely valuable storyhoard.*[28]

Our live project collaborations with Oxford's The Story Museum in 2011-12 extended our understanding of the relationship between reality and imagination in the architectural design process. The nature of a live project raises these issues by occupying the territory between professional projects and conventional student projects, therefore challenging familiar assumptions about intention, realisation and agency.[29] The subject matter of stories and the location of a semi-derelict building stimulated inquiry into themes of perception, occupation and change over time.

The Story Museum began in 2003 by taking a storytelling programme into schools and communities.[30] In 2009, an anonymous donor gave the organisation three buildings arranged around a courtyard in Pembroke Street, Oxford.[31] These buildings have had several recorded uses dating back to the thirteenth century including a public house, student housing and, most recently, a Post Office sorting office and telephone exchange. The buildings were empty between 2004 and 2010 when basic repairs enabled The Story Museum to move into the semi-derelict building. They needed to find a way to operate in a permanent home and they learnt to welcome visitors for the first time.

We first encountered The Story Museum when they were in the process of appointing an architect-led team for a two-phase development. The first student live project we developed involved the construction of prototype storytelling devices and spaces to enhance the use of the building in its partially renovated state. An additional, more speculative project was agreed for a tower – intended to become part of the group of Oxford's famous 'dreaming spires', in a city where so many young peoples' stories began. The likelihood of realising this project was small but the students' proposals gained traction through their intimate knowledge of The Story Museum as gathered in the earlier project.

These first two projects were recorded in a book titled *Fabrications*.[32] It included images and text describing the projects as well as a list of concepts found in the projects that had been identified as being particularly resonant by both students and The Story Museum in the concluding presentation and feedback session.

Reflecting on these concepts, it became apparent that every project can be identified as either deriving from something real or deriving from something imaginary *[1]*. The concepts that relate to something real all dealt

with the uncanny or the ephemeral. The concepts relating to the imagined all sprung from a subversion of everyday reality. In other words, reality and imagination are inter-dependent and co-define each other. The sense of uncanny that we have when something appears to be familiar but strange can be characterised as a 'cognitive dissonance caused by objects that lie on category boundaries'.[33] This chimes with Antony Vidler's portrayal of Hejduk and his architecture in *The Architectural Uncanny* as not quite fitting-in anywhere, characterised as 'vagabond' architecture.[34] When we encounter the architectural uncanny, our sense of context, customs and order are disrupted. Architecture that lies on the boundary between real and unreal is unsettling because the mind seeks to make sense of the world by placing objects and people in known categories. When people experience the uncanny it either stimulates them to engage more or it provokes a revulsion that stimulates dismissal or hostility.

In a post-project meeting with the directors of The Story Museum in October 2014, they confirmed that they continued to refer to the *Fabrications* project when considering what can be realised in the space. The OB1 LIVE projects were significant to them because they thought that the students had managed to achieve a reconciliation between real space and children's imagined spaces. They speculated that this could have come from an implicit understanding of how the museum wished to operate, the transitional nature of the context or as a result of the student's relative youth. Another explanation might be that the students' designs took the form of working prototypes, films, design proposal drawings and models, a book and an installation which allowed them to retain a productive degree of ambiguity in storytelling for designers, client and visitors.

Our experience as tutors, acting as mediators between student designers and client collaborators, gave us insight into the students' perceptions of reality and imagination over the course of the project from conception to occupation. In order to find a conceptual framework for our findings, we turned to the work and writings of John Hejduk. What follows is a comparative analysis of our collaborations with The Story Museum and readings of a similar range of work by John Hejduk *[2]*.

Architectural design: Animating the object

Fabrications (Oxford, 2011, OB1 LIVE)
The collaboration with The Story Museum sparked two reciprocal investigations into ways to generate imaginative space. The Story Museum was striving towards realisation of the refurbishment project by seeking to construct scope for imagination within the context of reality. The students were engaged in their very first architectural design project and therefore learning how to conceive and express an imagined reality, albeit using real objects such as models, prototypes and drawings to represent that reality.

The project brief was to design and make prototype story-telling devices for the re-occupation of redundant spaces in the museum. It was given this name because of the significance of the etymological connection between the reality of building ('to fabricate') and the invention of a lie or a story (also 'to fabricate'). In the student brief for his Nine Square Grid project, Hejduk also quoted these different meanings.[35] This project was used for decades by Hejduk, Robert Slutzky and Lee Hirsche[36] 'as a pedagogical tool in the introduction of architecture to new students'[37] starting at the University of Texas, Austin in 1954 and continuing at the Cooper Union School of Architecture in New York. Although the resulting student work appears to be a formal exercise in learning to draw orthographically, the process was undertaken with the intention that 'an idea of fabrication emerges'.[38]

Hejduk's counter-intuitive treatment of reality and imagination was important to his design process and reveals what he characterised as an unsettled interaction between them. In a lecture on education,[39] he described a problem he had set for students at Cooper Union. He showed them fruit in different guises: a Cezanne still life painting, a student drawing, a bowl of artificial fruit and a bowl of real fruit. When asked, 95% of his students said that the real fruit would taste best. His response was 'And I knew we had a problem.'[40]

The brief for the OB1 LIVE Fabrications project drew students' attention to the co-existence of realities such as the material and the functional as well as intangible qualities such as the imaginative and the conceptual. It was kept sufficiently open to enable individuals' personal responses to form the basis for their proposals. The importance of using imaginative and practical thinking to consider both occupation and use was stressed:

> *this brief is not asking you to design a chair. You are designing for the activity of listening, telling and experiencing a story in a space simultaneously real and imagined. This is a physical, intellectual and emotional activity.*[41]

The Fabrications were made from everyday objects and designed for (mis)reading with the building, superimposing serendipitous narratives. Several projects referred to the associated back story of the material, endowing it with both plot and characters. It emphasised the power of the everyday object (and architecture) to become a catalyst for imagination and to be transformed when activated by the user.

Collapse of Time (Hejduk, London, 1986)

Hejduk wrote about the experience of handling and reading ten booklets from Venice that were one of the inspirations for *The Collapse of Time*, along with his poem 'The Sleep of Adam': 'The *actual place* was the very *documents themselves*.'[42] At the beginning of a design project, past, present and future are being considered simultaneously. Storytelling is employed to help establish understanding and find meaning. Hejduk's insight that 'all are objects and all are subjects'[43] is particularly significant. The building proposal, by its very

absence cannot be dismissed as a dumb object. Its anticipated transformation imbues it with the significance and narrative to metamorphose into a subject. Architecture that stimulates the imagination never fully slips into being just an object. A strong grasp of the significance of designing with occupation in mind, and an acknowledgement that the putative building is a subject as much as it is object, helps the architect to avoid the trap of designing empty object-buildings where formal invention is the predominant driver for design.

Hejduk explains that:

Actual thought is of no substance. We cannot actually see thought, we can only see its remains.[44]

He recounts in vivid detail things that he experienced in the real world to explain what stimulated his insights. By enabling us to see the scene in our own minds, we are able to understand the concept. He describes a tree trunk covered in empty phosphorescent insect shells, hearing the metamorphosed insects singing, invisible, from the upper branches. He explains that art is the shell of thought. This insight connects the real and tangible with the imaginary and intangible in a symbiotic relationship. It also supports arguments above that architecture is both object and subject, that this can shift over time and that perception of the relationship will vary for the different agents over the course of the design process.

The ambiguity of subject and object

Tower of Stories project (Oxford, 2011, OB1 LIVE)
Our next project, to design a storytelling tower for The Story Museum, was concerned with an anticipated but more speculative future. In six weeks, students produced drawings and models of proposals including a rain-disguised tower, a prayer space and an occupied seashell.

The creative process of architectural design is concerned with the projection, manipulation, testing and communication of imagined space. This does not occur in a purely imaginative mode. At the beginning of the design process, the architect is absorbing the realities of the client and the place, highly conscious of the intended future occupation. The very earliest ideas are usually of completion. The architect and client are completely reliant on their imaginations to decide the realities of this future. The development of the design to sit within evolving and negotiated future contexts means that the completed building will never match exactly the first imagined but potent reality. Through our use of live projects, with all the uncertainty and risk they bring, students are exposed to the changing nature of reality over time, absorbing this into their design process from day one. By making stories and imagination the subject matter, this has exposed just how intertwined and often un-articulated both conceptual and real thinking can be during the design process. It has revealed that the possibility of being unreal to be real, just as every story, however fantastic, contains a grain of truth.

The Lancaster/Hanover Masque (Hejduk, Paper project, 1992)
In this project, Hejduk detaches himself from context by drawing an entire
community from his imagination. The drawings are accompanied by tables of
text describing precise yet imagined data for each 'object' and 'subject' in his
fictional community, for example:

> *Object*
> *Post Office*
> *Mobile unit with tractor treads, electric powered. Unit dimensions: 4ft x 4ft x
> 12ft […]*
> *Subject*
> *The Post Mistress*[45]

On close reading, it can be seen that – although people are listed as subjects
and buildings as objects – the Travelling Performers appear as both subjects
and objects. The buildings are anthropomorphic and human figures normally
only interact with objects when they are employed in moving or animating a
structure. One drawing titled 'Characters'[46] depicts twenty-five different
buildings not people. On re-reading the book we realised that we had
incorrectly remembered some of the people inhabiting certain buildings when
in fact they are mostly confined to separate drawings. By inhabiting the world
that Hejduk had created, subject and object had merged.

Hejduk described the experience of making the drawings for *The
Lancaster / Hanover Masque*: 'The lead of the pencil hardly touched the surface
of the paper: a thought captured before a total concretion.'[47] These drawings
subvert conventions of architectural representation because Hejduk decides
not to show the narrative of the spaces. He blurs and overlays plan, section and
elevation, reflecting the additive and partial way that we experience space. He
does not show how, why or where it is occupied but rather attempts to show
how the spaces are perceived by occupants.

Occupation: Remnants of imagination

Tall Tales (Oxford, 2012, OB1 LIVE)
The Story Museum invited OB1 LIVE to participate in *Other Worlds*, an
exhibition of site-specific installations formed through collaborations between
writers and artists. OB1 LIVE's contribution was installed in the kitchen of the
derelict telephone exchange canteen. After an absence of five months, the
students were jolted back into the reality of the building's undeveloped
existence: 'It hasn't changed!' In their minds, during the design process, the
building had moved and altered with their imaginations. It was almost a
surprise not to see their story towers projecting from the roof.

The installation, entitled *Tall Tales*, re-imagined Hejduk's 1:20 tower
models as a description of the possible shifting futures for The Story Museum.
This could not have been expressed if the tower models were displayed

conventionally as a series of finite architectural objects. The solution was to negate their physical presence using artificial light, merging them with the silhouettes of the redundant kitchen equipment and projecting a single speculative shadow skyline in order to return them to their fictional state as subjects once more.

The Retreat Masque (Hejduk, Stockholm, 1998)
Hejduk's built works such as *The Retreat Masque* for the *Writing the City* project challenge our assumptions about the definite and complete nature of constructed architecture. In Katja Grillner's essay on the project, she observes that somehow 'the construction maintains its eerie fictional nature in spite of its evident materiality'.[48] Hejduk draws attention to various elements in his structure such as the diving board that he describes as being for an 'anticipated function'.[49] The absence of inhabitation creates an ambiguity as to what point in time we are witnessing. Is this the moment when it transforms from being a subject in the mind of its creator to becoming an object for inhabitation? The anthropomorphic form and scale of the structure suggests that this construction could continue to act as subject, even when inhabited. The ambiguities between subject and object cultivated by Hejduk's work shift our expectations of constructed architecture and remind us of the complex and intertwined nature of reality and imagination in the design process.

Thing theory
Inspired by these live build projects, in order to explore further architects' awareness of the subject-object ambiguity and their perception of its role in the design process, we analysed the language of fifteen interviews with respected architects. Ten interviews of these interviews were conducted by Lawson[50] and another five by Anderson[51]. The interviews were undertaken for two separate books, both of which aimed to increase understanding of the architectural design process.

Some of the architects interviewed described the inanimate building object as a subject. In these situations, they tended to explain this as a deliberate use of metaphor and analogy:

> *Often we'll describe the building. We'll begin to describe its personalities and its qualities before we've drawn it* [Tompkins].[52]
> *We're actually both of us very analytical people but we're also using things like memory, analogy, intuition […] thoughts that can't be legitimated objectively. There is some resonance that you wait for between the subjective interpretation and the actual conditions* [Tuomey].[53]

All described moments of uncertainty that were critical to the development of their architectural proposals but they did not, or could not, articulate their thought process during those moments. In hindsight, most identified the building as the object and the users as the subjects. Occasionally the users were described in more objective terms:

you know how the sun travels, you know where any water is, you know whether the site is flat, you know where people are coming from and you work out where would be the best place for them to enter the site and the building. So each programme just gets split into a series of individual tasks and it's just like little pieces of paper which you put on the table [Jiricna].[54]

There was little discussion of the ambiguity between subject and object during the design process. However, one word that was used repeatedly by all of the architects was 'thing'. This seems to be the most favoured name for an architectural proposal as it emerges, ambiguous in its nature:

to start with you see the thing in your mind and it doesn't exist on paper and then you start making simple sketches and organising things [Calatrava].[55]
The most difficult thing is to see things that you don't know are there and to get past the point where you see things that you expect to be there [Bunschoten].[56]

Bill Brown explains in *Thing Theory* that:

The word thing *designates the concrete yet ambiguous within the everyday*: *'Put it by that green thing in the hall.' It functions to overcome the loss of other words or as a place holder for some future specifying operation*: *'I need that thing you use to get at things between your teeth.' It designates an amorphous characteristic or a frankly irresolvable enigma*: *'There's a thing about that poem that I'll never get'*.[57]

He describes how most people only really notice objects when they stop working and this is when they become things:

'when the drill breaks, when the car stalls'. This is 'the story of a changed relation to the human subject and thus the story of how the thing really names less an object than a particular subject-object relation.'[58]

During the design process there, is a similar moment when *thing* is used to describe the design proposal. The word enables designers to articulate during those moments where the ambiguity of the subject-object relation appears in our peripheral vision and nothing is what it seems. This state echoes the descriptions earlier of the architectural uncanny and Buchli's material register, which includes the intangible as a possible architectural form. Although Brown describes this as happening simply when objects break, during the design process not only do architects orchestrate a break from current reality, they transform it into a *thing* that enables them to realise one of many possible future realities.

Conclusion: Acknowledging complexities
We have become acutely aware of the following complexities surrounding the relationship between reality and imagination in the process of architectural design:

Architectural design is a predictive process that negotiates many different possible and as yet unrealised futures. This is equally the case for students and professionals. Until a building is realised it is intangible. Although the design process can be collaborative and produces physical

artefacts such as models and drawings in advance of an occupied building, our perception of the creative act itself can never be completely exposed to others. This break from the present reality is both the strength and the weakness of design. It makes wonderful inventions, and adaptions to changing realities, possible, but also makes it easy for the architect to misjudge the imperatives of everyday lived experience. This contributes to the neglect of the creative contribution of collaborators, consultants and clients whose imaginations are also engaged in the design process and whose experience of reality is filtered through their own individual perceptions.

Empirically, designers tend to equate the physical and the tangible with reality and dismiss the intangible or theoretical as not being engaged with reality. Habits create misconceptions about relationships between imagination and reality in the design process and suggest an inaccurate differentiation between the design process in practice and education which is disproved by the alternative perspective offered by live projects. Live projects offer an opportunity rarely given to studio-bound students and professional architects because they usually enable active participation in the construction phase and yield rapid post-occupation feedback. In our experience, student feedback and tutor reflection has supported the case that live projects help students to absorb an easier understanding of the relationship between reality and imagination into their design process as they learn. Our reappraisal of Hejduk's unexpectedly realised works as proto-live projects, in association with our students' work, demonstrates that a consideration of the reality of construction or occupation can be embedded within the design process even when there is little expectation that the work will be realised. Changing circumstances over time and design decisions made during the creative process alter our perception of the likelihood that a project will be realised and therefore how real it is perceived to be. It is therefore impossible to use either the architect's intention or the achievement of occupied construction to distinguish reality and imagination in the architectural design process.

The complexities presented by invention, intangibility, intent and change demonstrate the difficulty of producing any absolute or universal descriptions of the relationship between reality and imagination in the architectural design process. We observed the perception of reality and imagination for the different agents over the course of the OB1 LIVE *Fabrications* project. Although the perceptions of the different agents remained contingent, diverging and converging over the course of the project, this did not necessarily disrupt it. Our hypothesis is that acknowledgement and awareness between agents of these shifting perceptions of reality are important to the successful integration of the project's conception and realisation.

The OB1 LIVE projects for The Story Museum emphasised the significance of imagination for the occupants of realised and occupied space. The imaginative realm of architecture is not only inhabited by the architect and does not cease

once the architect's involvement ends. Concepts arising from that project demonstrated how that reality includes the uncanny and ephemeral, and how imagination relies on a subversion or inversion of reality. Reality and imagination remained inter-dependent and drew meaning from each other. Hejduk's observation that art is the shell of thought remains highly relevant here, connecting the real with the imaginative in a tangible form.

A philosophical approach to the problem of what exists (objects) and how we (subjects) perceive these objects to exist acknowledges that perceptions of reality and imagination differ in the minds of others. Tilley describes the relationship between subject and object as ambiguous because 'object and subject are indelibly conjoined in a dialectical relationship.'[59] Buchli explains that objects can exist in material registers which include the immaterial, such as metaphor. The Story Museum project demonstrated that, during the design process and when the imagination is stimulated during occupation, the building itself can shift from being an object to a subject. This echoes Hejduk's explorations of the ambiguity between subject and object. It also chimes with our analysis of fifteen interviews with practicing architects which showed their conscious inversion of object and subject during the design process, illustrated by their repeated use of the word *thing* to describe a design proposal as it emerges. In turn, this relates to Brown's description of a *thing* as 'the concrete yet ambiguous within the everyday'[60] which we don't usually notice until it breaks. These investigations highlight to us that the design process requires designers to break with their present reality in order to allow possible future realities to emerge via their imagination.

The conceptual framework of subject and object that we have outlined here, in relation to Thing Theory, has enabled us to observe and reassess the relationship between imagination and reality in the design process conducted through our live projects. Insights gained from our observations of the dynamic between reality and imagination during the course of those projects remove redundant distinctions between education and practice. Both use the device of the break from reality as a key moment in the design process that allows possible future realities to emerge. This is the moment when subject and object are at their most confusingly intertwined and designers can only name their work as a *thing*. This moment is strong because it is so flexible in responding to change and managing complexity. It is also weak because it is a time when the designer tends to neglect vital everyday constraints such as occupation and ethics. We have discovered that, when its importance is properly understood, this moment is an ideal one to include collaborators in the design process; a development that architects seem increasingly receptive to.

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CAPTIONS
1. Spatial concepts to stimulate the imagination proposed by OB1 LIVE in the *Fabrications* project. Findings from feedback session between OB1 LIVE and The Story Museum.
2. Comparative analysis of OB1 LIVE and Hejduk works

WEB ABSTRACT
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