Session Notes

THE PRACTICAL CRAFT OF RECORDING

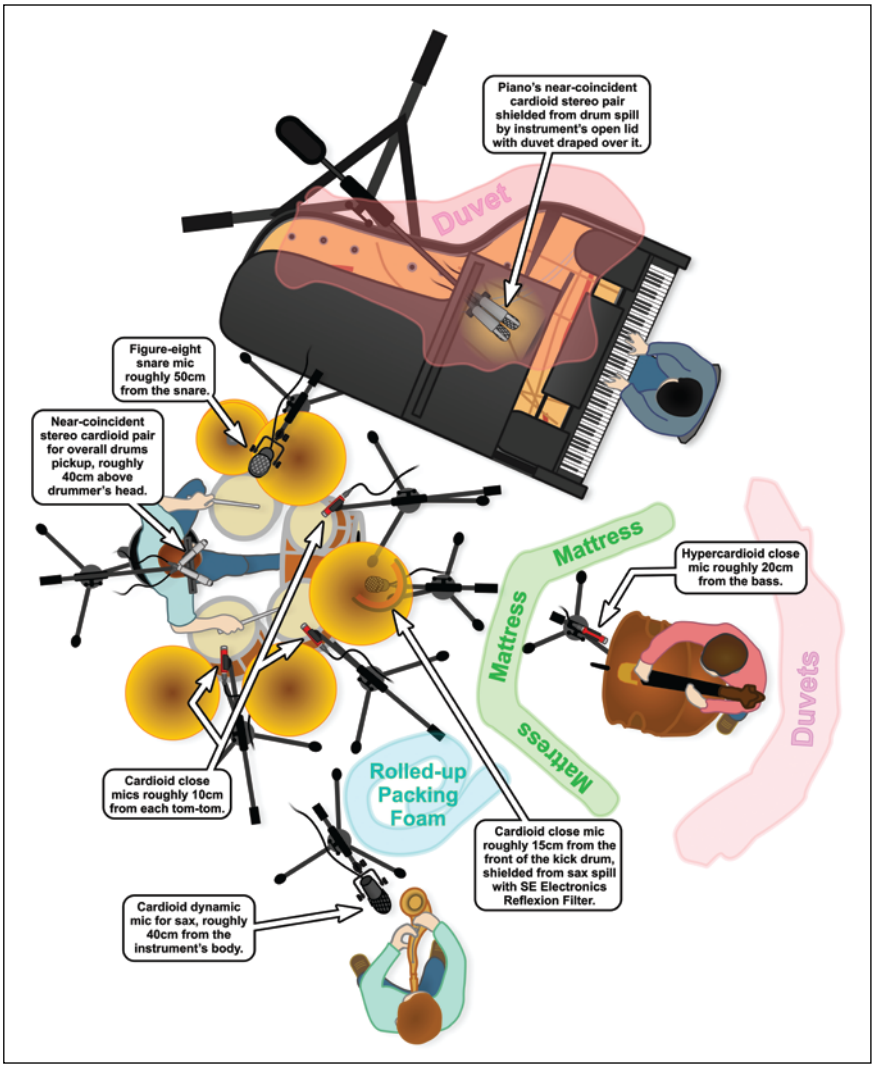
Spektakulatius: Recording 28 songs in five days is no mean feat. So what sort of results can you get, and what compromises are involved?

MIKE SENIOR

The affordability of modern studio equipment means that many *SOS* readers can now whittle away at projects entirely at their own pace. But when time's of the essence, how can you fast-track the recording process to get maximum results? By way of an answer, I'd like to tell you about a recent session, where a band asked me to record no fewer than 28 songs in five days.

The group in question was jazz-infused events band Spektakulatius (www.spektakulatius.de), who wanted to do both a Christmas-themed album and a record of cover songs. Complicating matters was that the different songs covered a wide range of musical styles, all the way from traditional music, folk and klezmer, through Latin, jazz and gospel, all the way to acoustic pop, blues and rock. And, as if that wasn't challenging enough, the band line-up also changed for pretty much every number:

- Drummer Thomas Göhringer switched to brushes for some songs, played hand percussion on others, and sometimes didn't play at all.
- Bass player Markus Braun swapped between electric and upright bass.
- Pianist Florian Blau occasionally switched to electric piano, accordion or percussion.



Above and left: here's how the main recording room was configured for one of Spektakulatius's songs. Many of the tracks used a very similar rhythm-section setup, the main points of difference being the model/position of the snare mic (in this case a ribbon mic above the snare) and the instrument played by band-leader Christian Bolz (sax in this case). The DIY vocal booth can be seen along the rear wall.

- Band-leader and arranger Christian Bolz is a multi-instrumentalist and flitted between nylon- and steel-strung acoustic guitar, electric guitar, tenor and baritone saxes, clarinet, bass clarinet and flute.
- The four vocalists all switched between lead and backing roles for different songs.

In our favour was the fact that the band had carefully prepared themselves to track ensemble performances wherever possible. Although the main impetus behind this was to foster natural interaction and musicianship between the players, recording like that also tends to get results much quicker than overdubbing everything piecemeal. I also knew from prior experience that we were fortunate in our venue, a large first-floor function room in a former guest house, which had a pleasant, well-controlled liveliness to it despite scant acoustic treatment. The room's 12 x 6 metre floor area and 3.5 metre ceiling height were ample for our purposes, and an unfurnished 4 x 5 metre spare room nearby was available as a control room.

Backtracking From Utopia

In order to make best use of the band's budget, my brief was to deliver multitracks that could pretty much mix themselves, the idea being that they would tackle the mixdown stage under their own steam. To this end, I instinctively gravitated towards an 'all-in-one-room' recording approach, so that I could use captured spill and room ambience to enhance each instrument's timbre and 'glue' the whole group together naturally. As such, my session-planning process began by considering how far I could afford to pursue this utopian ideal within our specific real-world scenario.

My biggest initial concern was the singers: they wouldn't be able to compete acoustically with the louder band instruments, so unless I isolated them in some way, the spill through the vocal mics would simply wash out the ensemble. However, I also wanted the freedom to comp each song's vocal tracks from snippets of all the available takes — flying in the best vocal take over the best band take usually makes much »

» more efficient use of time and energy than waiting for eight performers to hit their peak simultaneously! In addition, not having heard the singers in action, the thought that some timing or tuning correction might be necessary lurked at the back of my mind, and spill on a vocal mic usually militates against that. Discussions with the band about how to isolate the vocals yielded an unexpected outcome: "We'll build a wall!" It turned out that the owner of the property was in the process of converting the space into a home TV studio, and wanted to use an adjoining alcove stage as a control room. By helping him build a simple chipboard-and-batten partition (with window) across the stage opening, the band simultaneously furnished us with an impromptu vocal booth.

My other major concession was supplementing my microphone on the upright bass with a DI feed. Partly this would be a 'get out of jail free' card, should the other band instruments overwhelm the bass acoustically, but it's also a precaution I usually take when recording in untreated domestic environments to guard against a build-up of low-end spill. The problem is that low frequencies are more difficult to absorb or obstruct, and they're also favoured by the off-axis response of directional mics in particular, which leads to an overabundance of muddy ambience. High-pass filtering and/or gating selected mic signals can help combat this, but such tactics rarely work if the bass mic's your main culprit: its low frequencies are too important to filter out and its sustain phase is too important to gate. Having a spill-free DI signal allows you to high-pass filter, or even completely mute, the bass mic signal without losing bass level in the mix balance. Mind you, the DI will usually give a less natural bass tone, so I prefer to rely as little on the DI as possible.

As a final safety measure, I decided to set up a couple of mics in the control room, in case any of Christian's »

Spill on the upright bass's close mic was reduced by building a chest-height baffle out of three mini-mattresses and a thick rug, as well as by suspending a couple of thick duvets behind the player on a cheap lighting stand.

The piano mics were in a near-coincident configuration inside the piano, where they were shielded from drum spill by the instrument's own lid and a duvet draped over it.

To retain sufficient mixdown control, Mike recorded the majority of Christian's acoustic guitar parts in the control room to avoid spill from the drums, piano and bass in the main room. Both performer and engineer monitored the control-room mix on headphones under those circumstances. Christian maintained sonic consistency between takes by using an old cutlery knife from Mike's toolbag as a mic positioning template.

» instruments proved too quiet to record alongside the full band without excessive spill. While a certain amount of spill can work in your favour, any mic that picks up as much spill as direct sound becomes ineffective for adjusting ensemble balance at mixdown. Even the best acoustic recordings generally benefit from judicious fader automation, so I wanted to avoid tying the mix engineer's hands in that department.

Station Master

Having established the basic session layout, I started mapping out the rig. Three small mixers and a handful of rack units were to handle the analogue input conditioning, routing/submixing signals from the eight performers to my recorder's 16 line inputs as follows:

- Tracks 1-6: Drums (mono kick, mono snare, stereo overheads and stereo toms submix) or percussion.
- Tracks 7-8: Bass (mic and DI).
- Tracks 9-10: Stereo piano/keyboards/accordion.
- Tracks 11-12: Christian's instruments (whether mono or stereo).
- Tracks 13-16: Vocalists (one mic each).

To deal with all the line-up changes, I borrowed a technique from producer Daniel Lanois: maintaining 'stations' for each instrument. The idea is that each time you set up any recording chain, you leave it set up for the rest of the session, resisting the temptation to repurpose bits of that setup for anything else. For example, once I'd spent time choosing and positioning a mic and processing its signal to taste for Christian's electric guitar, I would avoid reusing those resources for any other instrument later on. So when it came time to record, say, his sax, I'd set up a separate mic, cable, stand and preamp/mixer channel for that, rather than nabbing components from the electric-guitar setup. As a result, the only thing I subsequently had to do to switch between recording electric guitar and sax was route the appropriate station to tracks 11-12. In this specific case I was able to do this using mixer subgroup-assignment switches, but in most other cases I just replugged XLR cables at the multicore stageboxes.

The biggest downside of the 'stations' approach is that it's pretty gear-hungry.

Frequent band line-up changes between numbers meant a great deal of rerouting and replugging. To avoid confusion and wasted session time, Mike labelled all the main control-room devices extensively with masking tape, as you can see here.

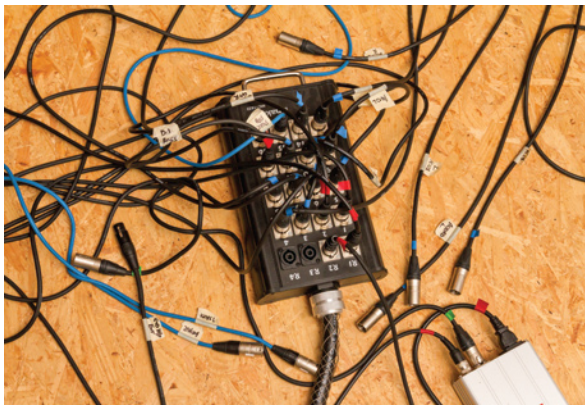
"Once Christian and I had decided on an acoustic guitar sound we liked, we worked out a way he could police that configuration himself."

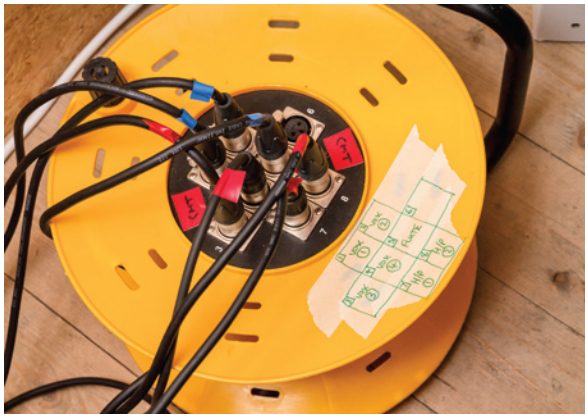
My collection of mics, stands and cables certainly wouldn't have stretched far enough had not the musicians supplemented my gear with a good deal of their own. It's also vital that you label things carefully, because nothing bogs down the recording workflow like routing gremlins — or trying to trace the source of an XLR line through the usual studio-floor 'cable spaghetti'. For me, that meant plastering masking tape all over the place, the acid test being 'Will I be able to work this system with a raging hangover?' (Hypothetically speaking, of course.) As such, I had labels on cable tails, stageboxes, mixers, outboard units, mics, DIs and headphone amplifiers, and also on various bits of the recorder itself. What made labelling even more important in this scenario was that there weren't enough multicore channels to cater for all the stations at once — some had to be reused, which involved replugging cables at both ends. Labelling does take time, though, so I always try to do as much as possible before the session, even if I'm still a little uncertain about some aspects of the setup. It's a whole lot quicker to alter one incorrect label on a 16-channel mixer, than to mark up everything from scratch.

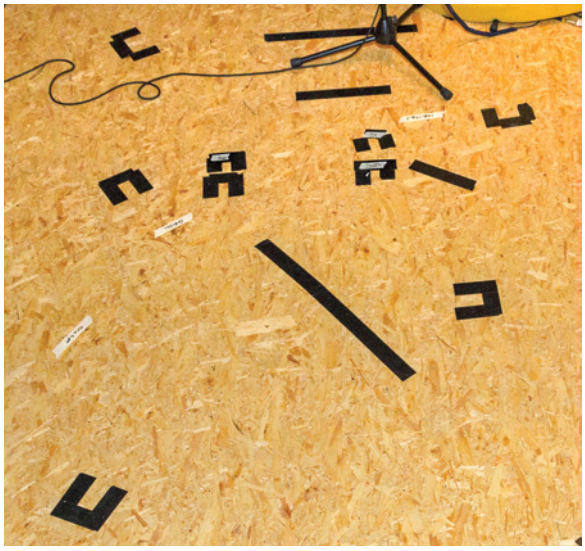
Because an important part of each station's sound is usually determined by

Audio Examples

For a selection of audio demonstration files from a couple of the songs recorded on this session, check out the *SOS* web site's accompanying media page.
W http://sosm.ag/jun15media







Masking-tape labels were also used extensively to keep track of the cables belonging to different instrument 'stations' and their appropriate multicore connections, and floor markings were also used to record where different chairs, instruments and performers should be positioned for improved repeatability.

the player's position relative to the mics, I also marked the floor with more tape (a combination of gaffer for durability and masking to write on) to keep the sonics more consistent between takes. These marks indicated the location of the upright bass's spike and the positions of Christian's feet and/or chair legs as he switched between playing different instruments. There was also an issue of communication, though, because the musicians can »

» definitely help you here. For example, I talked with Markus about trying to maintain a fairly consistent angle in relation to the microphone, especially as I was miking his instrument off-centre and most musicians have a strong instinct to turn towards the mic. In a similar vein, once Christian and I had decided on an acoustic guitar sound we liked, we worked out a way he could police that configuration himself: by luck, a blunt old cutlery knife (which I keep in my kit bag for tightening/removing those 3/8-to-5/8-inch thread-adaptor widgets) provided the perfect template when placed perpendicular to the fretboard at the 16th fret.

Don't Cry Over Spill

When recording a whole band playing together, rather than overdubbing, the first instinct of many project-studio engineers seems to be to maximise separation between the mics at all costs. Typically, they'll do this by putting players as far away from each other as possible, setting up extensive baffling between them, and miking each instrument super-tight. The advantage of this approach, of course, is that it leaves more scope to overhaul any instrument's individual sonics at mixdown. But there are downsides too: it makes it more difficult for the musicians to communicate naturally during and between takes; extreme close-miking tends to capture far less natural-sounding timbres; and isolated mic signals typically require much more mixing work to recombine into a convincingly blended ensemble sound.

The alternative approach I chose for this session was to bring the players as near to one another as possible, but without miking too close. Because all the mics in the ensemble therefore picked up a bit of everything, I knew this wouldn't allow me much leeway to reinvent any timbres at mixdown. I wasn't unduly concerned by this, though, because the band were committed to finding sounds that naturally worked together in the live room. After all, it's only if something sounds broken in the mix that you need to fix it!

That's not to say you don't have to take care with spill even in this context. As I already mentioned, the less direct sound any instrument's microphone catches, the less effective that mic will be at adjusting the instrument's balance at mixdown — which is why the acoustic guitars ended up migrating to the control room for most of the songs. For the band's core live-room setup, the piano and upright bass were both occasionally at a disadvantage acoustically compared with the drums, so I had to take some steps to reduce spill there. With the piano I wanted to keep the lid open for the most natural sound, so I turned the instrument to fire away from the drums, effectively transforming the lid into an impromptu baffle. A duvet or two draped over the lid shielded the mics a little further. The situation was trickier for the bass, which I eventually screened off to about chest height, using three mini-mattresses and a thick rug and miking it from within this construction using an Avantone CK1 with its hypercardioid capsule fitted. I also hung some quilts on a lighting stand behind Markus to damp rear-wall reflections reaching the mic on-axis.

Another thing you have to keep an ear out for is inappropriate depth representation, by which I mean any instrument in the ensemble balance which sounds too far away in the mix's front-back dimension, by virtue of its spill on other instruments' mics. Thomas's snare drum was occasionally a problem in this respect, even though positioning the drums behind the rest of the instruments in the mix was appropriate for most of the songs, and on a couple of occasions we had to work together to reduce its

> "To deal with all the line-up changes, I borrowed a technique from producer Daniel Lanois: maintaining 'stations' for each different instrument."

Inside The Vocal Booth

Whereas spill between mics formed an integral part of the main band sound, I did my best to minimise it in the vocal booth. Every spare bit of acoustic foam and bedding material we could find was draped on clothes rails behind the singers and on cardboard dividers piled between the mics. We couldn't separate the singers completely, because they needed to see each other to perform, so a few of the songs with a quieter lead vocal and louder backing vocals weren't as straightforward to balance as I'd have liked. With hindsight, there were some occasions where we'd have done well to overdub the backing vocals for this reason.

I also compressed all the vocals on the way into the recorder, to make the vocal balance more reliable for the foldback mixes and control-room playbacks. Besides, a moderate amount of compression on vocals while tracking is usually a fairly low-risk way of reducing the mixing workload — assuming, that is, that you don't do what I did and set the time-constants too fast, which in this case overemphasised everyone's sibilance!

Inside the DIY vocal booth each vocal mic had its own little niche.

No Mic Technique?

Because this month's Session Notes focuses primarily on the practicalities of trying to get maximum results in minimum time, I've not discussed my mic techniques as much as I usually would. For more complete details of which mics I chose, how and why I placed them, and what processing was applied during recording, check out the resources page on my web site, which includes audio examples of each track isolation and plenty of additional session-setup pictures.
W www.cambridge-mt.com/rs-ch10-case1.htm

acoustic power in the room so that it wouldn't sound too distant.

Christian's saxophone also caused me some concerns, because it spilled quite strongly into the kick, snare, drum-overhead and upright-bass mics. Although this was fine for backing parts, it placed him too far back in the image for his solos. The only baffling materials we had left were an sE Electronics Reflexion filter and a roll of packing foam, which only remedied the problem for the kick mic. I was loath to separate Christian from the band by bringing him into the control room, though, so I asked for the band's indulgence, made a quick test recording, and then spent a few minutes checking whether I might be able to resolve the problem by rebalancing the mics at mixdown. In the event, I was able to achieve a perfectly acceptable remedy by favouring the bass's DI over its mic and by partially gating the snare mic just for the sax's solo sections, so I decided to keep Christian out in the main room.

It's not just the *level* of the spill that's the issue, but also its character. It was for this reason that I steered clear of large-diaphragm condensers for most of the ensemble mics — these can often have an unappealing off-axis tone, especially the budget-friendly models. But otherwise, this meant designing each instrument's timbre not simply in terms of the sound of its close mic, but by considering how this complemented (or not!) the spill coming through all the other mics. So, for example, in one blues number, the drummer was hitting his snare drum harder than usual, sending a good deal of (rather appealing) spill into the piano mics. There was no point, therefore, in trying to make the snare's close mic particularly well-balanced, because it only needed to provided a bit more definition and attack in the mix.

Of course, the phase relationship between all your mics is crucial in determining the sonic character of spill, so you do have to optimise this as you build up your ensemble sound. There are plenty of in-depth tools for tweaking phase relationships, but the easiest one to manage is simple polarity inversion, and I used my polarity-flip buttons to death on this job. It's not rocket science — just remember to try inverting the polarity of each and every signal you add to the mix, and then choose the setting that sounds best in context.

Coincidentally...

Another way to minimise undesirable phase cancellations is to favour more compact stereo-miking rigs over »

Cue Mixes & Talkback

I'm no great fan of headphone monitoring but it was unavoidable here, because the musicians needed to perform and communicate with each other from the three separate recording spaces. My digital location recorder has four separate cue mixes available, two of which I allocated to the band, and two to the singers. However, I fed all the vocal signals to the cue mixes in the analogue domain so that there would be absolutely no monitoring latency for the singers. Even very low monitoring latency can cause performance and pitching difficulties for some singers, and I didn't want to take any risks when working within such a tight time-frame.

For talkback, I used a mic on a little desk stand in the control room, controlled via a simple footswitch (Radial passive Hot Spot DM1), leaving my hands free for riding faders and making notes once takes were underway. I didn't just feed the talkback to the headphones, though; I also fed the signal to a small speaker in the live room. I find this makes initial mic setup a lot easier (especially if you're working with an assistant), and has the added benefit that I can continue to swear at the musicians even after they've taken their cans off...

When I had Christian recording acoustic guitar in the control room with me, we both listened to my control-room mix over headphones. However, I don't like trying to judge recorded timbres over headphones, so there was a bit of jiggery-pokery was required there. First I sorted out the main band sound, and then recorded a section of that on the fly. Then I asked the band to give me a few minutes to do some test overdubs on that recording with Christian, which allowed me to evaluate his sound via speaker playback within the full-band context. When that was done, I rebalanced the control-room mix to suit Christian's foldback requirements, and finally checked with the rest of the band members that their foldback was OK before embarking on the first take. Not the most elegant system, I grant you, but it did the job.

Clockwise from top, the three components of Mike's talkback system: a dynamic mic in the control room, a footswitch to activate it, and a loudspeaker on the studio floor to supplement the signal sent to the headphone cue mixes.

» wide-spaced pairs. This is because if you end up panning any of those mics less than hard-left/right (not uncommon), the spill on the two mics will tend to comb-filter more destructively on a wide-spaced pair, in my experience. I chose near-coincident stereo rigs for the piano and drums respectively for this reason, even though I'll cheerfully use wider-spaced miking techniques for these instruments under other circumstances. (By the same token, spaced multi-miking of any instrument is rarely advisable where there's masses of spill, and I'd almost certainly have gone with coincident techniques had I used any multi-miking on this project.)

Speed Demon

Despite all the restrictions of working outside a traditional studio environment, all our planning and preparation paid off in the end: we finished the basic tracking for all 28 songs in just four days, polishing off a few fixes and additional overdubs the following morning.

And I'm assuming that the band were fairly happy with the sounds too, as they subsequently hired me to mix both records for them! So how much did the multitracks actually mix themselves, as we'd hoped? All will be revealed in next month's *SOS*...

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